```
=> s (boryl? OR boro? OR boran? OR borate? OR borin? OR borid?)(p)((cation OR
ion)(S)(exchange OR resin OR bead OR matrix OR surface OR chromatograph? OR
membrane)) AND (heme? OR haem? OR glyca? OR glycoprotein OR glycos? OR albumin)
          1617 BORYL?
        260418 BORO?
         16442 BORAN?
         64214 BORATE?
          5195 BORIN?
         33967 BORID?
        250387 CATION
       1065144 ION
        518599 EXCHANGE
        543928 RESIN
         23217 BEAD
        430967 MATRIX
       1979271 SURFACE
        384944 CHROMATOGRAPH?
        636626 MEMBRANE
          3096 (BORYL? OR BORO? OR BORAN? OR BORATE? OR BORIN? OR BORID?)(P)((C
               ATION OR ION)(S)(EXCHANGE OR RESIN OR BEAD OR MATRIX OR SURFACE
               OR CHROMATOGRAPH? OR MEMBRANE))
         34740 HEME?
         21682 HAEM?
         15479 GLYCA?
         89469 GLYCOPROTEIN
        151394 GLYCOS?
        118209 ALBUMIN
L4         124 (BORYL? OR BORO? OR BORAN? OR BORATE? OR BORIN? OR BORID?)(P)((C
               ATION OR ION)(S)(EXCHANGE OR RESIN OR BEAD OR MATRIX OR SURFACE
               OR CHROMATOGRAPH? OR MEMBRANE)) AND (HEME? OR HAEM? OR GLYCA?
               OR GLYCOPROTEIN OR GLYCOS? OR ALBUMIN)

=> display
ENTER (L4), L# OR ?:l4
ENTER ANSWER NUMBER OR RANGE (1):1-124
ENTER DISPLAY FORMAT (BIB):all

L4   ANSWER 1 OF 124  CAPLUS  COPYRIGHT 2004 ACS on STN
AN   2003:876594  CAPLUS
DN   140:3649
ED   Entered STN:  10 Nov 2003
TI   Changes in glycated haemoglobin levels in diabetic
     rats measured with an automatic affinity HPLC
AU   Nagisa, Yasutaka; Kato, Koki; Watanabe, Kaoru; Murakoshi, Hitomi; Odaka,
     Hiroyuki; Yoshikawa, Kazuhide; Sugiyama, Yasuo
CS   Pharmacology Research Laboratories II, Pharmaceutical Research Division,
     Takeda Chemical Industries Ltd, Osaka, Japan
SO   Clinical and Experimental Pharmacology and Physiology (2003), 30(10),
     752-758
     CODEN: CEXPB9; ISSN: 0305-1870
PB   Blackwell Publishing Asia Pty Ltd.
DT   Journal
LA   English
CC   14-8 (Mammalian Pathological Biochemistry)
     Section cross-reference(s): 1, 9
AB   1. The level of glycated Hb (GHb) in diabetic rats was measured
```

using a newly developed automatic high-performance liquid chromatog. (HPLC) with a **boronate** affinity column that requires only 2.5 min per sample for anal. 2. Levels of GHb were 2.7% in normal 7-wk-old Sprague-Dawley rats. These levels increased gradually following the abrupt induction of hyperglycemia by i.v. injection of streptozotocin (STZ), reaching a maximal level of 10.1% after 6 wk. 3. **Glycosylated** Hb (HbA1) levels measured by **cation-exchange** chromatog. were also increased by STZ treatment, although HbA1 values were lower than GHb measured by affinity column HPLC. 4. In Wistar fatty rats, GHb levels declined gradually over 5 wk following the administration of pioglitazone (0.75 or 2.25 mg/kg per day) as a food admixt., which reduced plasma glucose (PG) levels to normal levels within 1 wk. **Glycated** Hb levels after 5 wk treatment with pioglitazone correlated better with the area under the curve for PG over the entire 5 wk treatment period than with the PG level at the end of treatment. 5. In addition, GHb determined by affinity column HPLC correlated well with HbA1 measured by **cation-exchange** chromatog., although the GHb value was higher than the HbA1 value. 6. **Glycated** Hb levels in db/db and KKAy mice were higher than those in control normoglycemic animals and were also higher than HbA1 values measured by the **cation-exchange** method, although the two values did show good correlation. 7. These results indicate that the newly developed affinity column HPLC system is useful for evaluating total GHb levels in rats as an index of antidiabetic treatment.

ST **glycated** Hb detn automatic HPLC diabetes antidiabetic monitoring

IT HPLC
(affinity; changes in **glycated** Hb levels in diabetic rats measured with automatic affinity HPLC in relation to antidiabetic treatment monitoring)

IT Antidiabetic agents
Diabetes mellitus
(changes in **glycated** Hb levels in diabetic rats measured with automatic affinity HPLC in relation to antidiabetic treatment monitoring)

IT Hyperglycemia
(changes in **glycated** Hb levels in diabetic rats measured with automatic affinity HPLC in relation to antidiabetic treatment monitoring in relation to)

IT Hemoglobins
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(glycohemoglobins; changes in **glycated** Hb levels in diabetic rats measured with automatic affinity HPLC in relation to antidiabetic treatment monitoring)

IT 50-99-7, D-Glucose, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(blood; changes in **glycated** Hb levels in diabetic rats measured with automatic affinity HPLC in relation to antidiabetic treatment monitoring in relation to)

IT 111025-46-8, Pioglitazone
RL: PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(changes in **glycated** Hb levels in diabetic rats measured with automatic affinity HPLC in relation to antidiabetic treatment monitoring)

IT 9062-63-9, Hemoglobin A1
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(changes in **glycated** Hb levels in diabetic rats measured with automatic affinity HPLC in relation to antidiabetic treatment monitoring in relation to)

RE.CNT 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L4 ANSWER 2 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:547915 CAPLUS
DN 139:161570
ED Entered STN: 18 Jul 2003
TI Changes in methods for determination of **glycated albumin**
AU Fujita, Seiichi; Moriwaki, Kimi; Koutaka, Masami; Kakutani, Isami; Katayama, Yoshiaki
CS Dep. Clin. Lab., Natl. Cardiovasc. Cent., Suita, 565-8565, Japan
SO Seibutsu Shiryo Bunseki (2003), 26(3), 197-200
CODEN: SSBUEL; ISSN: 0913-3763
PB Seibutsu Shiryo Bunseki Kagakkai
DT Journal; General Review
LA Japanese
CC 9-0 (Biochemical Methods)
AB A review. There are several methods for the determination of **glycated albumin**; the HPLC method using an **ion-exchange resin** column and a **boronate** affinity column, the RIA method and the enzyme-linked **boronate** immunoassay. Recently, the enzyme method with high specificity for **glycated albumin** was developed. An outline of the determination of GA is presented.
ST review **glycated albumin** detn
IT Albumins, analysis
RL: ANT (Analyte); ANST (Analytical study)
(glycoalbumins; history of determination of **glycated albumin**)
IT Blood analysis
Human
(history of determination of **glycated albumin**)

L4 ANSWER 3 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:227233 CAPLUS
DN 139:48828
ED Entered STN: 25 Mar 2003
TI T-antigen binding lectin from the phytopathogenic fungus Sclerotium rolfsii
AU Swamy, Bale M.; Hegde, Ganapati V.; Naik, Ramachandra S.; Inamdar, Shashikala R.
CS Dep. Biochem., Karnatak Univ., Dharwad, 580 003, India
SO Lectins: Biology, Biochemistry, Clinical Biochemistry (2001), 15, No pp. given
CODEN: LBBBD5; ISSN: 0723-8878
URL: http://plab.ku.dk/tcbh/Lectins15/Sawmy/paper.htm
PB Lectins: Biology, Biochemistry, Clinical Biochemistry
DT Journal; (online computer file)
LA English
CC 6-3 (General Biochemistry)
Section cross-reference(s): 10

AB A lectin (SRL) from the sclerotial bodies of Sclerotium rolfsii, a soil borne phytopathogenic fungus has been purified to homogeneity using **ion exchange** and gel filtration chromatog. Purified lectin on SDS-PAGE and by gel filtration chromatog. at pH 4.3 gave a mol. weight of 17 kDa, also a mol. mass of 16,491 by MALDI MS. But on gel filtration at pH 7.2 gave a Mr of 34 kDa indicating dimeric nature. The lectin agglutinates human ABO as well as rabbit erythrocytes and the hemagglutination activity was strongly inhibited by fetuin, mucin and their asialo derivs. but not by simple sugars or their derivs. Several **glycoprotein** fractions from human milk and serum also inhibited the lectin's hemagglutination activity. Glycopeptides of asialofetuin containing O-linked but not N-linked sugar chains were found to be inhibitory. However, the O-linked sugar chains of fetuin and mucin prepared by **borohydride** reduction or the sugar derivs.; Galβ1-3GalNAc, Galβ1-3GalNAc-α-p-nitrophenyl and Gal β1-3GalNAc-O-Ph did not inhibit the hemagglutination activity. These results establishes that SRL recognizes the Galβ1-3GalNAc residue with an intact peptide backbone corresponding to T-antigen.

ST lectin phytopathogenic Sclerotium rolfsii **glycoprotein** blood group T substance

IT Blood-group substances
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(ABO; purification and interactions with glycoproteins of blood group substance T-binding lectin from Sclerotium rolfsii)

IT Antibodies and Immunoglobulins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(IgA; purification and interactions with glycoproteins of blood group substance T-binding lectin from Sclerotium rolfsii)

IT Glycopeptides
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(O-**glycosylated**; purification and interactions with glycoproteins of blood group substance T-binding lectin from Sclerotium rolfsii)

IT Blood-group substances
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(T; purification and interactions with glycoproteins of blood group substance T-binding lectin from Sclerotium rolfsii)

IT Molecular association
(**glycoprotein**/lectin; purification and interactions with glycoproteins of blood group substance T-binding lectin from Sclerotium rolfsii)

IT Blood serum
Milk
(human; purification and interactions with glycoproteins of blood group substance T-binding lectin from Sclerotium rolfsii)

IT Quaternary structure
(protein; purification and interactions with glycoproteins of blood group substance T-binding lectin from Sclerotium rolfsii)

IT Hemagglutination
Human
Sclerotium rolfsii
(purification and interactions with glycoproteins of blood group substance T-binding lectin from Sclerotium rolfsii)

IT Caseins, biological studies
Fetuins
Mucins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(purification and interactions with glycoproteins of blood group substance T-binding lectin from Sclerotium rolfsii)

IT Agglutinins and Lectins
RL: BSU (Biological study, unclassified); PRP (Properties); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation)
(purification and interactions with glycoproteins of blood group substance T-binding lectin from Sclerotium rolfsii)

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L4 ANSWER 4 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:41557 CAPLUS
DN 138:252050
ED Entered STN: 17 Jan 2003
TI Hemoglobin Gorwihl [α2β25(A2)Pro→Ala], an electrophoretically silent variant with impaired **glycation**
AU Bisse, Emmanuel; Schauber, Claude; Zorn, Nathalie; Epting, Thomas; Eigel, Antonin; Van Dorsselaer, Alain; Wieland, Heinrich; Kister, Jean; Kiger, Laurent
CS Department of Clinical Chemistry, University Hospital, Freiburg, D-79106, Germany
SO Clinical Chemistry (Washington, DC, United States) (2003), 49(1), 137-143
CODEN: CLCHAU; ISSN: 0009-9147
PB American Association for Clinical Chemistry
DT Journal
LA English
CC 13-5 (Mammalian Biochemistry)
Section cross-reference(s): 3
AB Background: Some of the genetic variants of Hb and their chemical modified

species are known to affect the measurement of Hb A1c. The purpose of this study was to characterize Hb species in the blood sample of a 74-yr-old German male with an exceptionally low Hb A1c value. Methods: Hemolyzates from the propositus and a healthy individual were analyzed by electrophoresis, **cation-exchange** HPLC, **boronate** affinity chromatog., and electrospray ionization-mass spectrometry (ESMS). Genomic DNA was amplified by PCR, and the sequencing was performed on an ABI 310 sequencer. Functional properties of Hb were determined by oxygen equilibrium studies and CO recombination kinetics after flash photodissocn. GlycoHb species were synthesized by incubating hemolyzates with glucose. Results: A novel, electrophoretically silent β chain, β5(A2)Pro→Ala or Hb Gorwihl, was detected by **cation-exchange** HPLC. It accounted for .apprx.44% of the total Hb and had functional properties similar to those of normal Hb A and a mild degree of heat instability. During incubation with glucose, **glycation** of the β chains (assessed by ESMS) in the hemolyzate of a healthy volunteer was twice as fast as in hemolyzate from the propositus. Conclusions: The substitution β5(A2)Pro→Ala seems to affect neither the functional properties nor the heterotropic interactions of Hb, but slows **glycation** of the N-terminal valine by an unknown mechanism.

ST Hb Gorwihl **glycation**

IT **Glycation**
Human
(Hb Gorwihl [α2β25(A2)Pro→Ala], an electrophoretically silent variant with impaired **glycation**)

IT Hemoglobins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(glycohemoglobins; Hb Gorwihl [α2β25(A2)Pro→Ala], an electrophoretically silent variant with impaired **glycation**)

IT Mutation
(substitution; Hb Gorwihl [α2β25(A2)Pro→Ala], an electrophoretically silent variant with impaired **glycation**)

IT 62572-11-6, Hemoglobin A1c
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(Hb Gorwihl [α2β25(A2)Pro→Ala], an electrophoretically silent variant with impaired **glycation**)

IT 502843-93-8, Hemoglobin Gorwihl
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(Hb Gorwihl [α2β25(A2)Pro→Ala], an electrophoretically silent variant with impaired **glycation**)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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L4 ANSWER 5 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:947253 CAPLUS
DN 138:150407
ED Entered STN: 15 Dec 2002
TI Structural analysis of the oligosaccharide alditols released from the jelly coat of Rana dalmatina eggs by reductive β-elimination
AU Florea, Doina; Maes, Emmanuel; Haddad, Mohamed; Strecker, Gerard
CS Departamentul de Biochimie, Facultatea de Biologie, Universitatea din Bucuresti, Bucharest, 76201, Rom.
SO Biochimie (2002), 84(7), 611-624
CODEN: BICMBE; ISSN: 0300-9084
PB Editions Scientifiques et Medicales Elsevier
DT Journal
LA English
CC 12-1 (Nonmammalian Biochemistry)
Section cross-reference(s): 33
AB A combination of **ion-exchange** chromatog. and high performance liquid chromatog. (HPLC) has been used to sep. the reduced oligosaccharides produced by alkaline **borohydride** degradation of oviducal mucins obtained from the jelly coat of Rana dalmatina. The primary structures of 26 O-**glycans** were determined by one-dimensional and two-dimensional 1H and 1H13C NMR spectroscopy. As observed for 20 other amphibian species, these carbohydrate chains are highly species-specific. The main typical feature of the species R. dalmatina consists in the presence of the backbone Gal(β1→3)[Gal(β1→4)]Gal(. beta.1→3)GalNAc-ol, previously observed among Ranidae, such as R. temporaria and R. ridibunda. Nevertheless, the nature of carbohydrates present at the periphery of the **glycans** perfectly differentiates the three species.
ST mucin oligosaccharide jelly coat Rana egg; amphibian egg mucin oligosaccharide jelly coat
IT Oligosaccharides, biological studies
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(alditol-containing; structural anal. of oligosaccharide alditols released from jelly coat of Rana dalmatina eggs)
IT Egg
(jelly coat; structural anal. of oligosaccharide alditols released from jelly coat of Rana dalmatina eggs)
IT Egg
Oviduct
Rana dalmatina
(structural anal. of oligosaccharide alditols released from jelly coat of Rana dalmatina eggs)
IT Mucins
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(structural anal. of oligosaccharide alditols released from jelly coat of Rana dalmatina eggs)
IT 57173-14-5 178417-33-9 178417-39-5 209478-91-1 210353-24-5
494838-25-4 494838-26-5 494838-27-6 494838-28-7 494838-29-8
494838-30-1 494838-31-2 494838-32-3 494838-33-4 494838-34-5
494838-35-6 494838-36-7 494838-37-8 494838-38-9 494838-39-0
494838-40-3 494838-41-4 494838-42-5 494838-43-6 494838-44-7
495397-21-2, GalNAc(α1→4)Gal(β1→3)GalNAc-ol
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(structural anal. of oligosaccharide alditols released from jelly coat of Rana dalmatina eggs)
RE.CNT 27 THERE ARE 27 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L4 ANSWER 6 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:436000 CAPLUS
DN 137:165740
ED Entered STN: 11 Jun 2002
TI Analysis of O-linked reducing oligosaccharides released by an in-line flow system
AU Karlsson, Niclas G.; Packer, Nicolle H.
CS Proteome Systems Ltd., Sydney, North Ryde, 1670, Australia
SO Analytical Biochemistry (2002), 305(2), 173-185
CODEN: ANBCA2; ISSN: 0003-2697
PB Elsevier Science
DT Journal
LA English
CC 9-16 (Biochemical Methods)
Section cross-reference(s): 33
AB Reducing O-linked oligosaccharides from bovine submaxillary mucin, bovine fetuin, and porcine gastric mucin were recovered by nonreductive alkaline β-elimination from an in-line flow system. Glycoproteins where attached to a solid support using hydrophobic interaction with alkali-resistant Poros reversed phase beads and a flow of alkali released the oligosaccharides. The alkali was subsequently neutralized by a continuous flow through **cation exchange resin**. The released oligosaccharides in the flow were trapped in a cartridge filled with graphitized carbon. Salt-free oligosaccharides could be recovered as a concentrated solution by elution with organic solvents from the cartridge. The **glycosylation** pattern of the released oligosaccharides was compared with the conventionally released and reduced oligosaccharides recovered from alkaline β-elimination in the presence of **borohydride**. In general, the recovery from the in-line release was sometimes lower than from the reductive elimination method, but it was shown that alkaline degradation of reducing oligosaccharides was limited in this system. Liquid chromatog. using graphitized carbon packing and high pH mobile phases together with neg. ion electrospray mass spectrometry showed

that both neutral and acidic reducing oligosaccharides could be analyzed in a single run. Reducing O-linked oligosaccharides could also be recovered in this way from human glycophorin separated by SDS-PAGE. The polyacrylamide was sufficient to retain the **glycoprotein** in the gel while the flow of alkali released the oligosaccharides. It was also shown that the alkaline conditions for releasing O-linked oligosaccharides from fetuin would partially release some N-linked oligosaccharides, particularly in the presence of reducing agent.

ST O linked reducing oligosaccharide detn flow system

IT Oligosaccharides, analysis
RL: ANT (Analyte); ANST (Analytical study)
(O-linked; determination of O-linked reducing oligosaccharides released by in-line flow system)

IT Spheres
(beads; determination of O-linked reducing oligosaccharides released by in-line flow system)

IT Mucins
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(bovine submaxillary and porcine gastric; determination of O-linked reducing oligosaccharides released by in-line flow system)

IT Fetuins
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(bovine; determination of O-linked reducing oligosaccharides released by in-line flow system)

IT Cation exchangers
Cell
Electrospray ionization mass spectrometry
Elimination reaction
Flow
Glycosylation
Human
Hydrophobicity
Liquid chromatography
Post-translational processing
(determination of O-linked reducing oligosaccharides released by in-line flow system)

IT Monosaccharides
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(determination of O-linked reducing oligosaccharides released by in-line flow system)

IT Glycophorins
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(determination of O-linked reducing oligosaccharides released by in-line flow system)

IT Glycoproteins
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(determination of O-linked reducing oligosaccharides released by in-line flow system)

IT Mass spectrometry
(liquid chromatog. combined with; determination of O-linked reducing oligosaccharides released by in-line flow system)

IT Liquid chromatography
(mass spectrometry combined with; determination of O-linked reducing

oligosaccharides released by in-line flow system)
IT Solvents
(organic; determination of O-linked reducing oligosaccharides released by in-line
flow system)
IT Elimination reaction
(reductive; determination of O-linked reducing oligosaccharides released by in-line flow system)
IT 7440-44-0, Carbon, uses
RL: NUU (Other use, unclassified); USES (Uses)
(determination of O-linked reducing oligosaccharides released by in-line flow
system)
RE.CNT 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD
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L4 ANSWER 7 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:43343 CAPLUS
DN 136:273147
ED Entered STN: 17 Jan 2002
TI MDR1 P-**glycoprotein** reduces influx of substrates without affecting membrane potential
AU Luker, Gary D.; Flagg, Thomas P.; Sha, Qun; Luker, Kathryn E.; Pica, Christina M.; Nichols, Colin G.; Piwnica-Worms, David
CS Molecular Imaging Center, Mallinckrodt Institute of Radiology, and the Departments of Molecular Biology and Pharmacology, Washington University School of Medicine, St. Louis, MO, 63110, USA
SO Journal of Biological Chemistry (2001), 276(52), 49053-49060
CODEN: JBCHA3; ISSN: 0021-9258
PB American Society for Biochemistry and Molecular Biology
DT Journal
LA English
CC 1-12 (Pharmacology)
Section cross-reference(s): 13
AB MDR1 (multidrug resistance) P-**glycoprotein** (Pgp; ABCB1) decreases intracellular concns. of structurally diverse drugs. Although Pgp is generally thought to be an efflux transporter, the mechanism of action remains elusive. To determine whether Pgp confers drug resistance through changes in transmembrane potential (Em) or ion conductance, we studied elec. currents and drug transport in Pgp-neg. MCF-7 cells and MCF-7/MDR1 stable transfectants that were established and maintained without chemotherapeutic drugs. Although Em and total membrane conductance did not differ between MCF-7 and MCF-7/MDR1 cells, Pgp reduced unidirectional influx and steady-state cellular content of Tc-Sestamibi, a

substrate for MDR1 Pgp, without affecting unidirectional efflux of substrate from cells. Depolarization of **membrane** potentials with various concns. of extracellular K+ in the presence of valinomycin did not inhibit the ability of Pgp to reduce intracellular concentration of Tc-Sestamibi, strongly suggesting that the drug transport activity of MDR1 Pgp is independent of changes in Em or total **ion** conductance. Tetra-Ph **borate**, a lipophilic anion, enhanced unidirectional influx of Tc-Sestamibi to a greater extent in MCF-7/MDR1 cells than in control cells, suggesting that Pgp may, directly or indirectly, increase the pos. dipole potential within the plasma membrane bilayer. Overall, these data demonstrate that changes in Em or macroscopic conductance are not coupled with function of Pgp in multidrug resistance. The dominant effect of MDR1 Pgp in this system is reduction of drug influx, possibly through an increase in intramembranous dipole potential.

ST multidrug resistant MDR1 **glycoprotein** membrane potential ion influx

IT P-glycoproteins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(MDR1; MDR1 P-**glycoprotein** reduces influx of substrates without affecting membrane potential)

IT Membrane potential
(biol.; MDR1 P-**glycoprotein** reduces influx of substrates without affecting membrane potential)

IT Biological transport
(drug; MDR1 P-**glycoprotein** reduces influx of substrates without affecting membrane potential)

IT Proteins
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(transmembrane; MDR1 P-**glycoprotein** reduces influx of substrates without affecting membrane potential)

IT 4358-26-3, Tetraphenyl borate 109581-73-9
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(MDR1 P-**glycoprotein** reduces influx of substrates without affecting membrane potential)

IT 7440-09-7, Potassium, biological studies 16887-00-6, Chloride, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(current; MDR1 P-**glycoprotein** reduces influx of substrates without affecting membrane potential)

RE.CNT 54 THERE ARE 54 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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L4 ANSWER 8 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:862301 CAPLUS
DN 136:213980
ED Entered STN: 29 Nov 2001
TI Keratan sulphate in cerebrum, cerebellum and brainstem of sheep brain
AU Papageorgakopoulou, Nickoletta; Theocharis, Achilleas D.; Skandalis, Spyros S.; Vynios, Demitrios H.; Theocharis, Dimitrios A.; Tsiganos, Constantine P.
CS Biochemistry and Natural Products Division, Organic Chemistry, Department of Chemistry, University of Patras, Patras, 26500, Greece
SO Biochimie (2001), 83(10), 973-978
CODEN: BICMBE; ISSN: 0300-9084
PB Editions Scientifiques et Medicales Elsevier
DT Journal
LA English
CC 13-1 (Mammalian Biochemistry)
Section cross-reference(s): 6
AB Keratan sulfate was identified in sheep brain. We describe here the isolation and partial characterization of keratan sulfate from cerebrum, cerebellum and brainstem of young sheep brains. The galactosaminoglycan was isolated by using **ion-exchange** chromatog. and gel filtration after exhaustive digestion with papain of the delipidated tissues, followed by alkaline **borohydride** degradation and chondroitinase ABC and heparinases I, II and III treatment. The material isolated by **ion-exchange** chromatog. from each tissue was eluted as single but polydispersed peak from Sephadex G-75, with average mol. masses 8.4, 7.9 and 8.8 kDa for cerebrum, cerebellum and brainstem, resp. Keratanase I and II totally degraded keratan sulfate from cerebrum and brainstem, but only partially that from cerebellum. The content of keratan sulfate was found to be about 215, 173 and 144 μg/g dry

delipidated tissue for cerebrum, brainstem and cerebellum, resp.
ST keratan sulfate cerebrum cerebellum brainstem sheep
IT Brain
(cerebellum; keratan sulfate in cerebrum, cerebellum and brainstem of sheep brain)
IT Brain
(cerebrum; keratan sulfate in cerebrum, cerebellum and brainstem of sheep brain)
IT Development, mammalian postnatal
(juvenile; keratan sulfate in cerebrum, cerebellum and brainstem of sheep brain)
IT Ovis aries
(keratan sulfate in cerebrum, cerebellum and brainstem of sheep brain)
IT **Glycosaminoglycans**, biological studies
RL: BSU (Biological study, unclassified); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation)
(keratan sulfate in cerebrum, cerebellum and brainstem of sheep brain)
IT Brain
(stem; keratan sulfate in cerebrum, cerebellum and brainstem of sheep brain)
IT 9056-36-4P, Keratan sulphate
RL: BSU (Biological study, unclassified); PRP (Properties); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation)
(keratan sulfate in cerebrum, cerebellum and brainstem of sheep brain)
RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD
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L4 ANSWER 9 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:282808 CAPLUS
DN 135:31473
ED Entered STN: 20 Apr 2001
TI Diversity of O-linked **glycosylation** patterns between species: characterization of 25 carbohydrate chains from oviducal mucins of Rana ridibunda
AU Mourad, Rabih; Morelle, Willy; Neveu, Andre; Strecker, Gerard
CS Laboratoire de Chimie Biologique, Unite Mixte de Recherche du Centre National de Recherche Scientifique no 8576, Universite des Sciences et Technologies de Lille (Flandres Artois), Villeneuve d'Ascq, 59655, Fr.
SO European Journal of Biochemistry (2001), 268(7), 1990-2003
CODEN: EJBCAI; ISSN: 0014-2956
PB Blackwell Science Ltd.
DT Journal
LA English
CC 12-1 (Nonmammalian Biochemistry)
AB Amphibia egg jelly coats are formed by components secreted along the oviduct. These secretion products overlay the oocytes as they pass along the different oviducal portions. Mucin type glycoproteins are the major constituents of the egg jelly coats. In this study, the O-linked carbohydrate chains of the jelly coats surrounding the eggs of Rana ridibunda were released by alkaline **borohydride** treatment. Fractionation of the mixture of O-linked oligosaccharide-alditols was achieved by a combination of chromatog. techniques including gel-permeation chromatog., **ion-exchange** chromatog. and high-performance liquid chromatog. using an amino-bonded silica column. The primary structures of these O-**glycans** were determined by one-dimensional and two-dimensional 1H-NMR spectroscopy and matrix-assisted laser-deposition-ionization-time-of flight mass spectrometry. 25 Oligosaccharide structures, possessing a core consisting of Gal(β1-3)GalNAc-ol with or without branching through a GlcNAc residue linked (β1-6) to the GalNAc residue (core type 2 or core type 1, resp.) are described. The most representative antennae were: HSO3(6)[Fuc(α1-3)]GlcNAc; Gal(β1-2)Gal; Gal(β1-2)Gal(α1-3)[Fuc(α1-2)]Gal; GlcA(β1-3)-Gal(β1-3)[Fuc(α1-2)]Gal; GalNAc(α1-4)Gal(β1-4)Gal; Gal(β1-3)GalNAc(α1-4)Gal(β1-4)Gal and GlcA(β1-3)Gal(β1-3)GalNAc. These results confirm the species-specific O-**glycosylation** of Amphibia oviducal mucins. The significance of this observation should be linked to a symbiotic role of carbohydrates involved in host-parasite interactions.
ST carbohydrate **glycosylation** oviduct mucin Rana; amphibia carbohydrate **glycosylation** oviduct mucin
IT **Glycosylation**
(biol.; diversity of O-linked **glycosylation** in oviducal mucins of Rana ridibunda)
IT Oligosaccharides, biological studies
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); OCCU (Occurrence)
(carbohydrate chains from oviducal mucins of Rana ridibunda)
IT Oviduct
Rana ridibunda
(diversity of O-linked **glycosylation** in oviducal mucins of Rana ridibunda)
IT Mucins
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(diversity of O-linked **glycosylation** in oviducal mucins of Rana ridibunda)
IT Egg
(jelly coat; carbohydrate chains from oviducal mucins of Rana ridibunda)

IT 255832-72-5 255832-74-7 255832-78-1 313056-87-0 344234-79-3
344234-80-6 344234-81-7 344234-82-8 344234-83-9 344234-84-0
344234-85-1 344234-86-2 344234-87-3 344234-88-4 344234-89-5
344234-90-8 344234-91-9 344234-92-0 344234-93-1 344234-94-2
344234-95-3 344234-96-4 344234-97-5 344234-98-6 344234-99-7
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); OCCU (Occurrence)
(carbohydrate chains from oviducal mucins of Rana ridibunda)

RE.CNT 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD
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L4 ANSWER 10 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:266105 CAPLUS
DN 135:59530
ED Entered STN: 15 Apr 2001
TI Effect of hemoglobin variants (Hb J, Hb G, and Hb E) on HbA1c values as measured by cation-exchange HPLC (Diamat)
AU Tsai, Li-Yu; Tsai, Shih-Meng; Lin, Me-Nung; Liu, Shu-Fen
CS Department of Clinical Biochemistry, School of Technology for Medical Science, School of Medicine, Kaohsiung Medical University, Kaohsiung, 80702, Taiwan
SO Clinical Chemistry (Washington, DC, United States) (2001), 47(4), 756-758
CODEN: CLCHAU; ISSN: 0009-9147
PB American Association for Clinical Chemistry
DT Journal
LA English
CC 14-8 (Mammalian Pathological Biochemistry)
AB The influence of selected Hb structural variants on HbA1c values was investigated by **cation exchange** HPLC. HbA1c and **glycated** Hb were measured by **cation exchange** HPLC and **boronate ion** capture. Diabetes patients with Hb AJ and Hb AG as well as nondiabetic patients with Hb AG and Hb AE showed mean values for fasting sugar of 12.6, 9.8, 4.4, and 5.2 mmol/L. HbA1c values measured by affinity chromatog. were appropriately increased for the patients' blood glucose values, but HbA1c values measured by HPLC were lower than those measured by affinity chromatog. whether the patients' were diabetic or not. The Hb mutations studied caused an abnormal HPLC chromatogram and falsely low HbA1c values measured by HPLC.
ST HbA1c cation exchange HPLC Hb variant
IT Hemoglobins

RL: ADV (Adverse effect, including toxicity); ANT (Analyte); ANST (Analytical study); BIOL (Biological study)
(G; Hb J, G, and E effect on HbA1c measured by cation-exchange HPLC (Diamat) in diabetes)

IT Diabetes mellitus
(Hb J, G, and E effect on HbA1c measured by cation-exchange HPLC (Diamat) in diabetes)

IT Hemoglobins
RL: ADV (Adverse effect, including toxicity); ANT (Analyte); ANST (Analytical study); BIOL (Biological study)
(J; Hb J, G, and E effect on HbA1c measured by cation-exchange HPLC (Diamat) in diabetes)

IT 9034-61-1, Hemoglobin E 62572-11-6, Hemoglobin A1c
RL: ADV (Adverse effect, including toxicity); ANT (Analyte); ANST (Analytical study); BIOL (Biological study)
(Hb J, G, and E effect on HbA1c measured by cation-exchange HPLC (Diamat) in diabetes)

L4 ANSWER 11 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:166984 CAPLUS
DN 135:30412
ED Entered STN: 09 Mar 2001
TI Negative and positive ion matrix-assisted laser desorption/ionization time-of-flight mass spectrometry and positive ion nano-electrospray ionization quadrupole ion trap mass spectrometry of peptidoglycan fragments isolated from various Bacillus species
AU Bacher, Gerold; Korner, Roman; Atrih, Abdelmadjid; Foster, Simon J.; Roepstorff, Peter; Allmaier, Gunter
CS Institute for Analytical Chemistry, University of Vienna, Vienna, A-1090, Austria
SO Journal of Mass Spectrometry (2001), 36(2), 124-139
CODEN: JMSPFJ; ISSN: 1076-5174
PB John Wiley & Sons Ltd.
DT Journal
LA English
CC 6-3 (General Biochemistry)
Section cross-reference(s): 9, 10, 33, 34
AB A general approach for the detailed characterization of sodium **borohydride**-reduced peptidoglycan fragments (syn. muropeptides), produced by muramidase digestion of the purified sacculus isolated from Bacillus subtilis (vegetative cell form of the wild type and a dacA mutant) and Bacillus megaterium (endospore form), is outlined based on UV **matrix**-assisted laser desorption/ionization time-of-flight (MALDI-TOF) and nano-electrospray ionization (nESI) quadrupole **ion** trap (QIT) mass spectrometry (MS). After enzymic digestion and reduction of the resulting muropeptides, the complex glycopeptide mixture was separated and fractionated by reversed-phase high-performance liquid chromatog. Prior to mass spectrometric anal., the muropeptide samples were subjected to a desalting step and an aliquot was taken for amino acid anal. Initial mol. mass determination of these peptidoglycan fragments (ranging from monomeric to tetrameric muropeptides) was performed by pos. and neg. **ion** MALDI-MS using the thin-layer technique with the **matrix** α-cyano-4-hydroxycinnamic acid. The results demonstrated that for the fast mol. mass determination of large sample nos. in the 0.8-10 pmol range and with a mass accuracy of ±0.07%, neg. ion MALDI-MS in the linear TOF mode is the method of choice. After this kind of muropeptide screening often a detailed primary structural anal. is required owing to ambiguous data. Structural data could be obtained from peptidoglycan monomers by post-source decay (PSD) fragment ion anal., but not from dimers or higher oligomers and not with the necessary sensitivity. Multistage collision-induced dissociation (CID) expts. performed on an nESI-QIT instrument were found to be the superior method for structural

characterization of not only monomeric but also of dimeric and trimeric muropeptides. Up to MS4 expts. were sometimes necessary to obtain unambiguous structural information. Three examples are presented: (a) CID MSn (n = 2-4) of a peptidoglycan monomer (disaccharide-tripeptide) isolated from B. subtilis (wild type, vegetative cell form), (b) CID MSn (n = 2-4) of a peptidoglycan dimer (bis-disaccharide-tetrapentapeptide) obtained from a B. subtilis mutant (vegetative cell form) and (c) CID MS2 of a peptidoglycan trimer (a linear hexasaccharide with two peptide side chains) isolated from the spore cortex of B. megaterium. All MSn expts. were performed on singly charged precursor ions and the MS2 spectra were dominated by fragments derived from inter-**glycosidic** bond cleavages. MS3 and MS4 spectra exhibited mainly peptide moiety fragment ions. In case of the bis-disaccharide-tetrapentapeptide, the peptide branching point could be determined based on MS3 and MS4 spectra. The results demonstrate the utility of nESI-QIT MS toward the facile determination of the **glycan** sequence, the peptide linkage and the peptide sequence and branching of purified muropeptides (monomeric up to trimeric forms). The wealth of structural information generated by nESI-QIT-MSn is unsurpassed by any other individual technique.

ST mass spectrometry peptidoglycan muropeptide structure Bacillus

IT Bacillus megaterium
Bacillus subtilis
(mass spectrometric characterization of peptidoglycan fragments isolated from various Bacillus species)

IT Peptidoglycans
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); PUR (Purification or recovery); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation)
(mass spectrometric characterization of peptidoglycan fragments isolated from various Bacillus species)

IT 84126-61-4P 123371-37-9P 123410-54-8P 123410-56-0P 342814-30-6P 342814-31-7P 342814-32-8P
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); PUR (Purification or recovery); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation)
(mass spectrometric characterization of peptidoglycan fragments isolated from various Bacillus species)

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L4 ANSWER 12 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2001:159786 CAPLUS
DN 134:281044
ED Entered STN: 07 Mar 2001
TI γ-amino-boronic acids mediated passive transport of glycopyranosides through a liquid organic membrane
AU Dicko, Amadou; Bui-Van, Tuan; Baboulene, Michel; Dousset, Brigitte
CS Laboratoire de Chimie Organique, Universite de Metz, Ile du Saulcy, Metz, F-57045, Fr.
SO Main Group Metal Chemistry (2001), 24(1), 15-20

CODEN: MGMCE8; ISSN: 0792-1241
PB Freund Publishing House Ltd.
DT Journal
LA English
CC 33-3 (Carbohydrates)
Section cross-reference(s): 29
AB The ability of γ-amino-propylboronic acids to transport Ph β-D-glucopyranoside and Ph β-D-galactopyranoside through a liquid organic membrane in the presence of trioctylmethylammonuim chloride was determined
Under the conditions examined, **glycoside** transport was facilitated by the reversible formation of covalent tetrahedral, anionic **glycoside** - **boronate** complexes, which partitioned into the organic **membrane** as lipophilic **ion** pairs. The apparent order of **glycoside** selectivity for the tetrahedral **boronate** transport was to be cis α,γ-diol> α,β-diol. The results indicate that the N → B intramol. dative bond and the Hydrophile-Lipophile-Balance (HLB) of the formed complex influence the **glycoside** transport rate.
ST aminoboronic acid glycopyranoside transport membrane octylmethylammonuim chloride
IT Membranes, nonbiological
(γ-amino-boronic acids mediated passive transport of glycopyranosides through a liquid organic membrane)
IT 98-80-6 1464-44-4 2818-58-8 5137-55-3, Trioctylmethyl ammonium chloride 332877-73-3 332877-74-4 332877-75-5 332877-76-6
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(γ-amino-boronic acids mediated passive transport of glycopyranosides through a liquid organic membrane)
RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
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L4 ANSWER 13 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2000:395308 CAPLUS
DN 133:174212
ED Entered STN: 15 Jun 2000
TI Effects of nine hemoglobin variants on five glycohemoglobin methods
AU Roberts, William L.; Frank, Elizabeth L.; Moulton, Linda; Papadea, Christine; Noffsinger, Jimmie K.; Ou, Ching-Nan
CS Department of Pathology, University of Utah, Salt Lake City, UT, 84132, USA
SO Clinical Chemistry (Washington, D. C.) (2000), 46(4), 569-572
CODEN: CLCHAU; ISSN: 0009-9147
PB American Association for Clinical Chemistry
DT Journal
LA English
CC 9-16 (Biochemical Methods)
AB Most studies of the effects of variant Hbs (Hbs) on specific glycoHb (gHb) methods have been case reports of a single variant Hb and one or two anal.

methods. Few studies have systematically examined multiple Hb variants with several widely used anal. methods. In this report, we describe the effects of nine heterozygous Hb variants on five gHb methods. A **boronate** affinity method was chosen as the comparative method because it has high specificity for **glycated** Hb and negligible interference by variant Hbs. Over 10 mo, we studied 40 samples with nine variant Hbs; 38 were detected during routine gHb anal. by a **cation -exchange** method. Two samples (Hb E trait) were identified during routine Hb phenotype anal. Samples were stored at 2-8°C until anal. within 10 days of collection. **Cation-exchange** chromatog. was performed on a Variant system with the Hb A1c program (Bio-Rad Labs.) and on an A1c 2.2 Plus analyzer using a 3-min protocol (Tosoh Medics). Immunoassays were performed on a DCA 2000 (Bayer Corporation, Elkhart, IN) and on a Hitachi 717 with Tina-quant HbA1c II reagents (Roche Diagnostics, Indianapolis, IN). **Boronate** affinity anal. on a CLC 385 analyzer (Primus Corporation) served as the comparative method. All methods used the manufacturers' reagents as recommended, had imprecision (CV) <5%, are certified traceable to the Diabetes Control and Complications Trial by the National GlycoHb Standardization Program, and reported results as percentage of Hb A1c. In conclusion, several variant Hbs can produce variable interferences with both of the **cation-exchange** chromatog. gHb methods that we evaluated. The DCA 2000 and Tina-quant methods agreed well with **boronate** affinity chromatog.

ST glycoHb detn Hb variant interference

IT Affinity chromatography
Blood analysis
Cation exchange liquid chromatography
Immunoassay
(effects of nine Hb variants on five glycoHb methods)

IT Hemoglobins
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(effects of nine Hb variants on five glycoHb methods)

IT Hemoglobins
RL: ANT (Analyte); ANST (Analytical study)
(glycohemoglobins; effects of nine Hb variants on five glycoHb methods)

RE.CNT 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L4 ANSWER 14 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2000:320617 CAPLUS

DN 134:14809

ED Entered STN: 17 May 2000

TI Quantitative determination of collagen crosslinks

AU Sims, Trevor J.; Avery, Nicholas C.; Bailey, Allen J.

CS Division of Molecular and Cellular Biology, University of Bristol, Langford, Bristol, UK

SO Methods in Molecular Biology (Totowa, New Jersey) (2000), 139(Extracellular Matrix Protocols), 11-26
CODEN: MMBIED; ISSN: 1064-3745

PB Humana Press Inc.

DT Journal; General Review

LA English

CC 9-0 (Biochemical Methods)
Section cross-reference(s): 13, 14

AB A review with 20 refs. and protocols. The intermediate crosslinks of collagen may be radiolabeled by reduction of the tissue with tritiated sodium **borohydride**, thus facilitating their location and identification during subsequent chromatog. However, their quantification requires either ninhydrin, or a similar post-column derivatization technique, following their separation from the acid hydrolyzate of the tissue by **ion-exchange** chromatog. Precolumn derivatization of these polyvalent crosslinks by subsequent anal. by reversed-phase high performance liquid chromatog. (HPLC) can produce multiple derivs. that elute as sep. peaks throughout the subsequent anal. and is therefore not recommended. The mature crosslinks, histidino-hydroxlysinonorleucine (HHL), hydroxylysyl-pyridinoline (Hyl-Pyr) and lysyl-pyridinoline can be simultaneously quantified using the same **ion-exchange** column. Hyl-Pyr and Lys-Pyr can also be determined, with greater sensitivity, by HPLC utilizing their natural fluorescence to facilitate their detection and quantification. A second crosslinking mechanism occurs when the turnover of collagenous tissues decreases following maturation and involves the reaction of glucose with the ESC-amino group of lysine and subsequent oxidation reactions. Generally known as **glycation**, the addition of glucose is nonenzymic, adventitious, and possibly random. Crosslinks formed by this mechanism, such as pentosidine, could provide good biomarkers of low metabolism and possible damage to the functional properties of collagen during aging and in diabetic subjects. The protocols for these processes are presented.

ST review collagen crosslink detn chromatog aging diabetes mellitus

IT Aging, animal
Crosslinking
Diabetes mellitus
Glycation
Ion exchange chromatography
Reversed phase HPLC
Sample preparation
(quant. determination of collagen crosslinks)

IT Collagens, analysis
RL: ANT (Analyte); PRP (Properties); ANST (Analytical study)
(quant. determination of collagen crosslinks)

RE.CNT 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L4 ANSWER 15 OF 124 CAPLUS

AN 2000:292292 CAPLUS
DN 133:105211
ED Entered STN: 05 May 2000
TI Synthesis of water soluble O-**glycosides** of N-(hydroxyalkyl)aminomethylferrocenes
AU Landells, John S.; Kerr, Joy L.; Larsen, David S.; Robinson, Brian H.; Simpson, Jim
CS Department of Chemistry, University of Otago, Dunedin, N. Z.
SO Dalton (2000), (9), 1403-1409
CODEN: DALTFG
PB Royal Society of Chemistry
DT Journal
LA English
CC 33-3 (Carbohydrates)
Section cross-reference(s): 29
OS CASREACT 133:105211
AB A series of water soluble ferrocenylamine-glucose conjugates, N-2-(β-D-glucopyranosyloxy)ethyl-, N-3-(β-D-glucopyranosyloxy)propyl-, [N-5-(β-D-glucopyranosyloxy)pentyl-N-methylaminomethyl]ferrocene, has been synthesized from the methiodide salt of N,N-dimethylaminomethylferrocene and N-(3,4,6-tri-O-benzyl-β-D-glucopyranosyloxy-Et, -Pr and -pentyl)amine resp. N-Methylation of the products from the latter reaction was achieved by formylation followed by reduction with lithium aluminum hydride. Catalytic hydrogenolysis over palladium removed the benzyl protecting groups from the carbohydrate moiety to give the target conjugates. An alternative synthesis of [N-2-(β-D-glucopyranosyloxyethyl)aminomethyl]ferrocene using **boron** trifluoride-diethyl ether promoted **glycosylation** of penta-O-acetyl-D-glucopyranose and [N-(2-hydroxyethyl)-N-methylaminomethyl]ferrocene followed by deacetylation of the carbohydrate protecting group using basic **ion exchange resin** was also developed. The pKa values of the water soluble conjugates were determined
ST aminomethylferrocene **glycoside** prepn; methylation formylation redn hydrogenolysis prepn ferrocenylamine **glycoside**; **boron** ether **glycosylation** deacetylation **ion exchange resin** prepn **glycoside**
IT Formylation
Hydrogenolysis catalysts
Methylation
Reduction
(synthesis of water soluble O-**glycosides** of N-(hydroxyalkyl)aminomethylferrocenes)
IT **Glycosides**
RL: SPN (Synthetic preparation); PREP (Preparation)
(synthesis of water soluble O-**glycosides** of N-(hydroxyalkyl)aminomethylferrocenes)
IT 109-83-1, N-Methylethanolamine 604-69-3 883-44-3 3891-07-4 7803-57-8, Hydrazine hydrate 12086-40-7 12093-10-6, Ferrocenecarbaldehyde 55628-54-1 63273-48-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis of water soluble O-**glycosides** of N-(hydroxyalkyl)aminomethylferrocenes)
IT 282724-65-6P 282724-66-7P 282724-67-8P 282724-68-9P 282724-69-0P 282724-70-3P 282724-71-4P 282724-72-5P 282724-73-6P 282724-74-7P 282724-75-8P 282724-76-9P 284022-61-3P 284022-62-4P 284022-67-9P 284022-71-5P 284022-74-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis of water soluble O-**glycosides** of N-(hydroxyalkyl)aminomethylferrocenes)
IT 284022-63-5P 284022-64-6P 284022-68-0P 284022-69-1P
RL: SPN (Synthetic preparation); PREP (Preparation)

(synthesis of water soluble O-**glycosides** of N-(hydroxyalkyl)aminomethylferrocenes)

RE.CNT 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L4 ANSWER 16 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1999:776673 CAPLUS
DN 132:105521
ED Entered STN: 09 Dec 1999

TI Acquisition of species-specific O-linked carbohydrate chains from oviductal mucins in Rana arvalis: a case study

AU Coppin, Alexandra; Maes, Emmanuel; Flahaut, Christophe; Coddeville, Bernadette; Strecker, Gerard

CS Laboratoire de Chimie Biologique, Unite Mixte de Recherche du Centre National de la Recherche Scientifique no. 8576, Universite des Sciences et Technologies de Lille (Flandres-Artois), Villeneuve d'Ascq, Fr.

SO European Journal of Biochemistry (1999), 266(2), 370-382
CODEN: EJBCAI; ISSN: 0014-2956

PB Blackwell Science Ltd.

DT Journal

LA English

CC 12-1 (Nonmammalian Biochemistry)
Section cross-reference(s): 33

AB The extracellular matrix surrounding amphibian eggs is composed of mucin-type glycoproteins, highly O-**glycosylated** and plays an important role in the fertilization process. Oligosaccharide-alditols were released from the oviductal mucins of the anuran Rana arvalis by alkali-**borohydride** treatment in reduced conditions. Neutral and acidic oligosaccharides were fractionated by **ion**-

exchange chromatogs. and purified by HPLC. Each compound was identified by matrix assisted laser desorption ionization-time of flight (MALDI-TOF) spectrometry, NMR spectroscopy, electrospray ionization-tandem mass spectroscopy (ESI-MS/MS) and permethylation analyses. This paper reports on the structures of 19 oligosaccharide-alditols, 12 of which have novel structures. These structures range in size from disaccharide to octasaccharide. Some of them are acidic, containing either a glucuronic acid or, more frequently, a sulfate group, located either at the 6 position of GlcNAc or the 3 or 4 positions of Gal. This latter sulfation is novel and has only been characterized in the species R. arvalis. This structural anal. led to the establishment of several novel carbohydrate structures, demonstrating the structural diversity and species-specificity of amphibian glycoconjugates.

ST oligosaccharide egg jelly coat mucin anuran

IT Egg
(jelly coat; species-specific O-linked carbohydrate chains from oviductal mucins in anurans)

IT Rana arvalis
Species differences
(species-specific O-linked carbohydrate chains from oviductal mucins in anurans)

IT Oligosaccharides, biological studies
Ovomucoids
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); OCCU (Occurrence)
(species-specific O-linked carbohydrate chains from oviductal mucins in anurans)

IT 3554-90-3 73499-58-8 95632-88-5 138691-69-7 205825-55-4
254896-57-6 255832-72-5 255832-74-7 255832-76-9 255832-78-1
255832-80-5 255832-82-7 255832-85-0 255832-87-2 255832-88-3
255832-91-8 255832-93-0 255832-94-1 255914-84-2
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); OCCU (Occurrence)
(species-specific O-linked carbohydrate chains from oviductal mucins in anurans)

RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L4 ANSWER 17 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:742450 CAPLUS
DN 132:89773
ED Entered STN: 23 Nov 1999
TI Structural analysis of 13 neutral oligosaccharide-alditols released by reductive β-elimination from oviductal mucins of Rana temporaria
AU Coppin, Alexandra; Maes, Emmanuel; Morelle, Willy; Strecker, Gerard
CS Laboratoire de Chimie biologique, Unite Mixte de Recherche du Centre National de Recherche Scientifique no. 8576, Universite des Sciences et Technologies de Lille (Flandres-Artois), Villeneuve d'Ascq, F-59655, Fr.
SO European Journal of Biochemistry (1999), 266(1), 94-104
CODEN: EJBCAI; ISSN: 0014-2956
PB Blackwell Science Ltd.
DT Journal
LA English
CC 6-4 (General Biochemistry)
AB Amphibian eggs are always surrounded by an extracellular matrix, named the jelly coat. This is mainly composed of a highly O-**glycosylated**, mucin-type **glycoprotein**. This work has consisted of isolating O-linked neutral oligosaccharides from oviductal mucin of Rana temporaria, with a view to determining their primary structure. Hence, these carbohydrate chains have been released by alkaline **borohydride** treatment leading to stable **glycans**. The oligosaccharide-alditols have been purified by **ion-exchange** chromatog. and separated by HPLC. The primary structure of 13 of these carbohydrate chains have been obtained by 1D/2D 1H-NMR spectroscopy and methylation analyses, in combination with MALDI-TOF mass spectroscopy. The results confirm what has been observed for six other amphibians about the species-specificity of the carbohydrate moieties and their likely involvement in the species-specific gamete recognition.
ST oligosaccharide alditol ovum mucin Rana; jelly coat egg mucin Rana oligosaccharide alditol
IT Oligosaccharides, biological studies
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); OCCU (Occurrence)
(O-linked; structural anal. of 13 neutral oligosaccharide-alditols released by reductive β-elimination from oviductal mucins of Rana temporaria)
IT Egg
(jelly coat; structural anal. of 13 neutral oligosaccharide-alditols released by reductive β-elimination from oviductal mucins of Rana temporaria)
IT Oviduct
Rana temporaria
(structural anal. of 13 neutral oligosaccharide-alditols released by reductive β-elimination from oviductal mucins of Rana temporaria)
IT Mucins
RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)
(structural anal. of 13 neutral oligosaccharide-alditols released by reductive β-elimination from oviductal mucins of Rana temporaria)
IT 3554-90-3 95632-88-5 138691-69-7 196608-21-6 205825-50-9 254886-35-6 254886-36-7 254886-37-8 254886-38-9 254886-43-6 254886-44-7 254886-45-8 254896-57-6
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); OCCU (Occurrence)
(structural anal. of 13 neutral oligosaccharide-alditols released by

reductive β-elimination from oviductal mucins of Rana temporaria)
RE.CNT 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD
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L4 ANSWER 18 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:232741 CAPLUS
DN 131:55381
ED Entered STN: 15 Apr 1999
TI Characterization of the O-linked oligosaccharide structures on P-selectin **glycoprotein** ligand-1 (PSGL-1)
AU Aeed, Paul A.; Geng, Jian-Guo; Asa, Darwin; Raycroft, Loretta; Ma, Li; Elhammer, Ake P.
CS Pharmacia and Upjohn, Kalamazoo, MI, 49007-4940, USA
SO Glycoconjugate Journal (1998), 15(10), 975-985
CODEN: GLJOEW; ISSN: 0282-0080
PB Kluwer Academic Publishers
DT Journal
LA English
CC 6-3 (General Biochemistry)
AB P-selectin glypoprotein ligand-1, PSGL-1, a specific ligand for P-, E-, and L-selectin, was isolated from in vivo [3H]-glucosamine labeled HL-60 cells by a combination of wheat germ agglutinin and platelet P-selectin- or E-selectin receptor globulin-agarose chromatog. The O-linked oligosaccharides on the ligand were released by mild alkaline sodium **borohydride** treatment and analyzed by a combination of **ion -exchange**, size exclusion, lectin, and paper chromatog., together with specific exoglycosidase treatments and chemical modifications. Approx. 91% of the radioactivity released from PSGL-1 was recovered in five O-linked **glycans**: GalNAc (approx. 4% of the total structures), Galβ, 3GalNAc (36%), and Galβ, 3GalNAc substituted with one (45%), two (6 %), or three (3%) N-acetyllactosamine repeat units. None of these structures contained fucose, and the majority were substituted with at least one sialic acid. The N-acetyllactosmine-containing structures appeared to be core 2. The remaining 9% of the radioactivity recovered in O-linked oligosaccharides from PSGL-1, eluted in two peaks at 11.8 and 10.2 glucose units, on size-exclusion chromatog. Results from lectin chromatog. and chemical and enzymic degradation expts. suggest that the major portion of the radioactivity in these peaks is associated with sialylated N-acetyllactosamine-type oligosaccharides, substituted with fucose at the penultimate residue in the nonreducing end. Since both sialic acid and fucose reportedly are crucial requirements for selectin binding, these results suggest that only a minor portion, approx. 4.5%, of the O-linked oligosaccharides on PSGL-1 are involved in the interaction with the selectins.
ST PSGL1 selectin ligand O oligosaccharide

IT Oligosaccharides, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PROC (Process)
(O-linked; characterization of the O-linked oligosaccharide structures on P-selectin **glycoprotein** ligand-1 (PSGL-1))
IT Glycoproteins, specific or class
RL: BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PROC (Process)
(PSGL-1 (P-selectin **glycoprotein** ligand-1); characterization of the O-linked oligosaccharide structures on P-selectin **glycoprotein** ligand-1 (PSGL-1))
IT 32181-59-2, N-Acetyllactosamine
RL: BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PROC (Process)
(oligosaccharide containing; characterization of the O-linked oligosaccharide structures on P-selectin **glycoprotein** ligand-1 (PSGL-1))
RE.CNT 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD
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L4 ANSWER 19 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:2141 CAPLUS
DN 130:165080
ED Entered STN: 04 Jan 1999
TI A general approach to desalting oligosaccharides released from glycoproteins
AU Packer, Nicolle H.; Lawson, Margaret A.; Jardine, Daniel R.; Redmond, John W.
CS Macquarie University Centre for Analytical Biotechnology, School of Biological Sciences, Macquarie University, Sydney, NSW 2109, Australia
SO Glycoconjugate Journal (1998), 15(8), 737-747
CODEN: GLJOEW; ISSN: 0282-0080
PB Kluwer Academic Publishers
DT Journal
LA English
CC 9-9 (Biochemical Methods)
Section cross-reference(s): 6, 7, 33
AB Desalting of sugar samples is essential for the success of many techniques of carbohydrate anal. such as mass spectrometry, capillary electrophoresis, anion exchange chromatog., enzyme degradation and chemical derivatization. All desalting methods which are currently used have limitations for example, mixed-bed **ion-exchange** columns risk the loss of charged sugars, precipitation of salt by a non-aqueous solvent can result in co-precipitation of oligosaccharides, and gel chromatog. uses highly crosslinked packings in which separation of small oligosaccharides is difficult to achieve. We demonstrate that graphitized carbon as a solid phase extraction cartridge can be used for the purification of oligosaccharides (or their derivs.) from solns. containing one or more of the following contaminants: salts (including salts of hydroxide, acetate, phosphate), monosaccharides, detergents (SDS and Triton X-100), protein (including enzymes) and reagents for the release of oligosaccharides from glycoconjugates (such as hydrazine and sodium **borohydride**). There is complete recovery of the oligosaccharides from the adsorbent which can also be used to fractionate acidic and neutral **glycans**. Specific applications such as clean-up of N-linked oligosaccharides after removal by PNGase F and hydrazine, desalting of O-linked **glycans** after removal by alkali, online desalting of HPAEC-separated oligosaccharides and β-eliminated alditols prior to electrospray mass spectrometry, and purification of oligosaccharides from urine are described.
ST oligosaccharide desalting **glycoprotein** anion exchange chromatograph mass spectrometry
IT Glycophorins
RL: ANT (Analyte); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(A; general approach to desalting oligosaccharides released from glycoproteins)
IT Graphitized carbon black
RL: ARU (Analytical role, unclassified); BUU (Biological use, unclassified); NUU (Other use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(Carbograph, non-porous; general approach to desalting oligosaccharides released from glycoproteins)
IT Salts, analysis

RL: ARU (Analytical role, unclassified); REM (Removal or disposal); ANST (Analytical study); PROC (Process)
(desalting; general approach to desalting oligosaccharides released from glycoproteins)

IT Anion exchange HPLC
Electrospray ionization mass spectrometry
Urine
(general approach to desalting oligosaccharides released from glycoproteins)

IT Fetuins
Glycoproteins, general, analysis
Ovalbumin
RL: ANT (Analyte); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(general approach to desalting oligosaccharides released from glycoproteins)

IT Oligosaccharides, analysis
RL: ANT (Analyte); BPR (Biological process); BSU (Biological study, unclassified); PUR (Purification or recovery); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process)
(general approach to desalting oligosaccharides released from glycoproteins)

IT Amino acids, analysis
RL: ARU (Analytical role, unclassified); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(general approach to desalting oligosaccharides released from glycoproteins)

IT Proteins, general, analysis
RL: ARU (Analytical role, unclassified); BSU (Biological study, unclassified); REM (Removal or disposal); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(general approach to desalting oligosaccharides released from glycoproteins)

IT Graphitized carbon black
RL: ARU (Analytical role, unclassified); BUU (Biological use, unclassified); NUU (Other use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(porous; general approach to desalting oligosaccharides released from glycoproteins)

IT Albumins, analysis
RL: ANT (Analyte); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(serum; general approach to desalting oligosaccharides released from glycoproteins)

IT Extraction
(solid-phase; general approach to desalting oligosaccharides released from glycoproteins)

IT 83534-39-8, PNGase F
RL: ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); REM (Removal or disposal); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(general approach to desalting oligosaccharides released from glycoproteins)

IT 119683-99-7, Hypercarb
RL: ARU (Analytical role, unclassified); BUU (Biological use, unclassified); NUU (Other use, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(general approach to desalting oligosaccharides released from glycoproteins)

IT 302-01-2, Hydrazine, analysis
RL: ARU (Analytical role, unclassified); RCT (Reactant); REM (Removal or disposal); ANST (Analytical study); PROC (Process); RACT (Reactant or reagent)
(general approach to desalting oligosaccharides released from glycoproteins)
RE.CNT 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE

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L4 ANSWER 20 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:582777 CAPLUS
DN 129:287460
ED Entered STN: 14 Sep 1998
TI What is hemoglobin A1c? An analysis of **glycated** hemoglobins by electrospray ionization mass spectrometry

AU Peterson, Karen P.; Pavlovich, James G.; Goldstein, David; Little, Randie; England, Jack; Peterson, Charles M.
CS Sansum Medical Research Foundation, Santa Barbara, CA, 93111, USA

SO Clinical Chemistry (Washington, D. C.) (1998), 44(9), 1951-1958
CODEN: CLCHAU; ISSN: 0009-9147
PB American Association for Clinical Chemistry
DT Journal
LA English

CC 9-5 (Biochemical Methods)

AB Hb A1c (HbA1c) is a stable minor Hb variant formed in vivo by posttranslational modification by glucose, originally identified by using **cation exchange** chromatog., and containing primarily **glycated** N-terminal β-chains. However, the structure(s) of the quantified species has not been elucidated, and the available methods lack a reference standard We used electrospray ionization mass spectrometry to determine the extent of **glycation** of samples separated by **boronate** affinity and/or **cation exchange** chromatog. Analyses of clin. samples were consistent with the curvilinear relationship of patient glucose and HbA1c. As **glycation**

increased, the ratio of β-chain to α-chain **glycation** increased, and the number of **glycation** sites on the β-chain increased, although these were relatively minor components. We found several **glycated** species that cochromatographed with HbA1c on **cation exchange**, including species with both **glycated** α- and β-chains, nonglycated α- and **glycated** β-chains, and multiply **glycated** β-chains. The combined use of affinity and **cation exchange** chromatog. with structural confirmation by electrospray ionization mass spectrometry was found to be useful in producing samples of sufficient purity for the standardization of glycoHb clin. assays.

ST Hb A1c **glycated**; electrospray ionization mass spectrometry

IT Hemoglobins
RL: ANT (Analyte); ANST (Analytical study)
(glycohemoglobins; what is Hb A1c An anal. of **glycated** Hbs by electrospray ionization mass spectrometry)

IT Electrospray ionization mass spectrometry
(what is Hb A1c An anal. of **glycated** Hbs by electrospray ionization mass spectrometry)

IT 62572-11-6, Hemoglobin A1c
RL: ANT (Analyte); ANST (Analytical study)
(what is Hb A1c An anal. of **glycated** Hbs by electrospray ionization mass spectrometry)

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L4 ANSWER 21 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:485947 CAPLUS
DN 129:200715
ED Entered STN: 05 Aug 1998
TI Acidic glycolipids from marine Annelida (lugworm, Tylorhynchus

heterochaetus) : occurrence of methylinositol phosphate-containing sphingolipids

AU Sugita, Mutsumi; Aoki, Kazuhiro; Dulaney, John T.; Suzuki, Minoru; Suzuki, Akemi; Nishizawa, Naoto; Sakata, Ayako

CS Faculty of Leberal Arts and Education, Shiga University, Otsu-shi, Hiratsu, 520-0862, Japan

SO Nihon Yukagakkaishi (1998), 47(7), 695-702
CODEN: NIYUFC; ISSN: 1341-8327

PB Nihon Yukagaku Gakkai

DT Journal

LA Japanese

CC 12-1 (Nonmammalian Biochemistry)

AB Two novel series of **glycosphingolipids** containing inositolphosphate or methylinositolphosphate as an acidic group were found present in whole tissues of the lugworm, Tylorhynchus heterochaetus. The thin layer chromatog. pattern of the total acidic glycolipid revealed the presence of several components with pos. reactions toward molybdate (phosphate) and/or both molybdate and orcinol-sulfuric acid (sugar) spray reagents. Three components (AGL01, AGL1 and AGL21) were isolated and purified by successive column chromatog. on two **ion exchange** Sephadexes and silicic acid (Iatrobeads). From structural studies including compositional sugar anal., hydrogen fluoride degradation, **boron** tribromide demethylation, methylation anal. and fast atom bombardment, their structures were deduced to be as follows:AGL01, InsMe (1→)-P-Cer; AGL1, Fuc-InsMe(1→)-P-Cer; and AGL21, Ins (1→)-P-Cer. The ceramide moieties of the inositollipids consisted mainly of C16:0 and C18:0 fatty acids and dihydroxy-(C18:1 and C18:0) sphingoids for AGL21, and 2-hydroxylated C16:0 and C18:0 fatty acids and trihydroxy-(C18:0) sphingoid for AGL01 and AGL1. In addition, their thin layer chromatog. behavior and the results of compositional anal. indicated presence of at least four more inositollipids to possibly be Man-InsMe-P-Cer (AGL22), Fuc-Ins-P-Cer(AGL3), man-Ins-P-Cer(AGL4) and Man(Fuc-)Ins-P-Cer(AGL5).

ST **glycosphingolipid** lugworm; methylinositol phosphate sphingolipid Tylorhynchus

IT Tylorrhynchus heterochaetus
(methylinositol phosphate-containing sphingolipids from marine sponge)

IT **Glycosphingolipids**
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); PUR (Purification or recovery); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation)
(methylinositol phosphate-containing sphingolipids from marine sponge)

IT 68247-19-8, Inositol phosphate 68247-19-8D, Inositol phosphate, methylated
RL: PRP (Properties)
(methylinositol phosphate-containing sphingolipids from marine sponge)

L4 ANSWER 22 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1998:374904 CAPLUS

DN 129:106105

ED Entered STN: 19 Jun 1998

TI Hemoglobin Raleigh as the cause of a falsely increased hemoglobin A1C in an automated ion-exchange HPLC method

AU Chen, Dan; Crimmins, Dan L.; Hsu, Fong Fu; Lindberg, Frederik P.; Scott, Mitchell G.

CS Division of Laboratory Medicine, Washington University School of Medicine, St. Louis, MO, 63110, USA

SO Clinical Chemistry (Washington, D. C.) (1998), 44(6), 1296-1301
CODEN: CLCHAU; ISSN: 0009-9147

PB American Association for Clinical Chemistry

DT Journal

LA English

CC 9-3 (Biochemical Methods)

AB Irreversible **glycation** of the Hb A0 (HbA0) β chain leads to the production of HbA1C, which can be used to monitor long-term blood glucose control in patients with diabetes mellitus. HbA1C is less pos. charged than nonglycated HbA0, and this decrease in charge in the basis of **ion-exchange** and electrophoretic methods that measure HbA1C. We recently identified a sample that appeared to contain 46% HbA1C by an automated **ion-exchange** HPLC method (Bio-Rad Variant) but only 3.8% by an immunoinhibition latex agglutination method. A combination of traditional and mass spectrometric protein anal. and genomic DNA anal. of the Hb β chain and genes revealed that the patient was heterozygotic for Hb-Raleigh, a variant containing a valine→alanine substitution at position 1 of the β chain. The amino-terminal alanine in this variant Hb is posttranslationally modified by acetylation, leading to a charge difference similar to **glycation** and making the behavior of HbA1C and Hb Raleigh virtually identical in the **ion-exchange** HPLC method. This observation suggests that it is important to confirm HbA1C values in excess of 15%, especially if they are not consistent with the clin. picture, by an independent HbA1C method such as immunoassay or **boronic** acid affinity chromatog. However, for this particular variant Hb, even these latter methods might be misleading, because the acetylated N-terminal amino acid of the Hb-Raleigh β chain cannot be **glycated.**

ST Hb Raleigh ion exchange HPLC; chromatog Hb A1C detn

IT Ion exchange HPLC
(Hb Raleigh as the cause of a falsely increased Hb A1C in an automated ion-exchange HPLC method)

IT 62572-11-6, Hemoglobin A1C
RL: ANT (Analyte); ANST (Analytical study)
(Hb Raleigh as the cause of a falsely increased Hb A1C in an automated ion-exchange HPLC method)

IT 64763-53-7, Hemoglobin Raleigh
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(Hb Raleigh as the cause of a falsely increased Hb A1C in an automated ion-exchange HPLC method)

RE.CNT 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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L4 ANSWER 23 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1998:168194 CAPLUS
DN 128:292917
ED Entered STN: 21 Mar 1998
TI Structural analysis of oligosaccharide-alditols released by reductive β-elimination from the jelly coats of the anuran Bufo arenarum
AU Morelle, Willy; Cabada, Marcelo O.; Strecker, Gerard
CS Laboratoire de Chimie Biologique et Unite Mixte de Recherche du CNRS 111, Universite des Sciences et Technologies de Lille, Villeneuve d'Ascq, F-59655, Fr.
SO European Journal of Biochemistry (1998), 252(2), 253-260
CODEN: EJBCAI; ISSN: 0014-2956
PB Springer-Verlag
DT Journal
LA English
CC 12-1 (Nonmammalian Biochemistry)
Section cross-reference(s): 33
AB Amphibian egg jelly coats are formed by components secreted along the oviduct. These secretion products overlay the oocytes as they are transported toward the cloaca. Mucin type glycoproteins are the major constituents of the egg jelly coats. In this study, the O-linked carbohydrate chains of the jelly coat surrounding the eggs of Bufo arenarum were released by alkaline **borohydride** treatment. Fractionation of the mixture of O-linked oligosaccharide-alditols was achieved by a combination of chromatog. techniques comprising gel-permeation chromatog., **ion-exchange** chromatog. and high-performance liquid chromatog. using an amino-bonded silica column, afforded 11 fractions. The primary structures of these O-**glycans** were determined by one-dimensional and two-dimensional 1H-NMR spectroscopy in conjunction with matrix-assisted laser-desorption-ionization-time-of-flight mass spectrometry. 11 Oligosaccharide structures, possessing a core consisting of Galβ1→3GalNAc-ol with or without branching through a GlcNAc residue linked β1→6 to the GalNAc residue (core type 2 or core type 1, resp.) are described. These oligosaccharide-alditols with these types of cores have been identified previously in mammalian mucins or in oviducal amphibian jellies. These **glycans** contain blood group determinants such as H, A or Cad antigens.
ST oligosaccharide alditol jelly coat Bufo
IT Bufo arenarum
(Structural anal. of oligosaccharide-alditols released by reductive β-elimination from the jelly coats of the anuran Bufo arenarum)
IT Oligosaccharides, biological studies
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); PUR (Purification or recovery); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation)
(alditol-containing; Structural anal. of oligosaccharide-alditols released by reductive β-elimination from the jelly coats of the anuran Bufo arenarum)
IT Egg
(jelly coat; Structural anal. of oligosaccharide-alditols released by reductive β-elimination from the jelly coats of the anuran Bufo arenarum)
IT 10486-91-6P 57173-14-5P 68314-59-0P 94426-18-3P 95041-13-7P 101627-94-5P 163807-70-3P 165675-71-8P 178417-39-5P 205990-14-3P 205990-15-4P

RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); PUR (Purification or recovery); BIOL (Biological study); OCCU (Occurrence); PREP (Preparation)
(Structural anal. of oligosaccharide-alditols released by reductive β-elimination from the jelly coats of the anuran Bufo arenarum)

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L4 ANSWER 24 OF 124 CAPLUS
AN 1997:398052 CAPLUS
DN 127:132539
ED Entered STN: 27 Jun 1997
TI Arylsulfatase A from human placenta possesses only high mannose-type **glycans**
AU Laidler, Piotr; Litynska, Anna
CS Institute of Medical Biochemistry, Collegium Medicum, Jagiellonian University, Krakow, 31-034, Pol.
SO International Journal of Biochemistry & Cell Biology (1997), 29(3), 475-483
CODEN: IJBBFU; ISSN: 1357-2725
PB Elsevier
DT Journal
LA English
CC 7-2 (Enzymes)
AB It has been shown that the concentration of arylsulfatase A increases in the body fluids of patients with some forms of cancer and the carbohydrate component of arylsulfatase A synthesized in tumor tissues and transformed cells undergo increased sialylation, phosphorylation and sulfation. The specificity of changes in the **glycosylation** of glycoproteins in cancer is still unknown. To understand the significance of any changes in **glycosylation** of arylsulfatase A in cancer, it is important to know the structure of its carbohydrate component in normal tissue. Here, carbohydrate moieties of human placental arylsulfatase A were studied by sequential lectin affinity chromatog. after enzymic cleavage and labeling with tritiated sodium **borohydride**. Labeled oligosaccharides were subjected to **ion exchange** chromatog. The uncharged fraction and the neuraminidase treated charged fraction were

further analyzed using the lectins: Con A (Con A), Ricinus communis (RCA I), Triticum vulgaris (L-PHA) and Aleuria aurantia (AAL). The results indicated that 98% of the arylsulfatase A oligosaccharides were low mol. weight high mannose type **glycans** possessing up to 5 mannose residues. This was supported by the .apprx.2.4 kDa decrease in the mol. weight of arylsulfatase A subunits upon complete peptide N-**glycosidase** F deglycosylation, as shown using SDS-PAGE. The remaining 3% of the arylsulfatase A oligosaccharides were of the high mannose type, possessing more than 5 mannose residues. Most (97.5%) of the **glycans** were uncharged, while 2.5% were charged. Neuroaminidase treatment of the latter did not remove the charge, suggesting the presence of phosphatase or sulfate residues. This study, of arylsulfatase A oligosaccharides separated from the protein part, shows that all **glycans** of the enzyme from human placenta are of the high mannose type.

ST arylsulfatase A mannose oligosaccharide placenta

IT Oligosaccharides, biological studies
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); OCCU (Occurrence)
(high mannose-type; arylsulfatase A from human placenta possesses only high mannose-type **glycans**)

IT 3458-28-4D, D-Mannose, oligosaccharide containing 7512-17-6D, N-Acetylglucosamine, oligosaccharide containing
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); OCCU (Occurrence)
(arylsulfatase A from human placenta possesses only high mannose-type **glycans**)

IT 9068-68-2, Arylsulfatase A
RL: PRP (Properties)
(arylsulfatase A from human placenta possesses only high mannose-type **glycans**)

RE.CNT 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L4 ANSWER 25 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1996:720948 CAPLUS
DN 126:44180
ED Entered STN: 07 Dec 1996
TI Structural studies on acidic oligosaccharides of bonnet monkey (Macaca radiata) luteal phase cervical mucus
AU Mahmood, Khalid; Khan, Abbas H.; Mahmood, Zahid; Ahmed, Maroof; Nawaz, Mohammad; Hoessli, Daniel C.; Nasir-Ud-Din
CS Institute Biochemistry, Univ. Balochistan, Quetta, Pak.
SO Journal of the Chemical Society of Pakistan (1996), 18(3), 237-245
CODEN: JCSPDF; ISSN: 0253-5106
PB Chemical Society of Pakistan
DT Journal
LA English
CC 6-4 (General Biochemistry)
Section cross-reference(s): 13
AB Glycoproteins obtained from gestagenic phase of the bonnet monkey cervical mucus were purified by gel filtration and **ion-exchange** chromatog. The **glycoprotein** fraction was homogeneous in polyacrylamide gel electrophoresis and by reaction with antiglycoprotein antibody. Alkaline-**borohydride** cleavage of the oligosaccharide chains from a **glycoprotein** fraction provided neutral and acidic oligosaccharides. The acidic oligosaccharides were purified by gel filtration. Based on enzymic chems. and affinity studies, structure of seven acidic oligosaccharides are proposed. The chemical structure of these luteal phase oligosaccharides bears similarities with the structure of midcycle as well as those of human cervical oligosaccharides. Study on the bonnet monkey cervical mucus was pursued as it possesses ovarian cycle similar to that of human and because of its phylogenetic closeness to man. The oligosaccharide structure are as follows: NeuAcα (2-6) GlcNAcβ (1-6) GalNAc-ol; NeuAcα (2-3) [Galβ(1-4)] GlcNAcβ (1-6) GalNAc-ol; Fucα (1-2) Galβ (1-3) [NeuAc (2-6)] GalNAc-ol; Fucα (1-2) Galβ (1-4) GlcNAcβ (1-3) [NeuAc (2-6)] GalNAc-ol, Galβ (1-4) [NeuAc (2-3)] GlcNAcβ (1-6) [Fucα (1-2) Galβ (1-3)] GalNAc-ol; Fucα (1-2) Galβ (1-4) GlcNAcβ (1-3) Galβ (1-3) [NeuAc (2-6)] GalNAc-ol, GalNAcα (1-4) Galβ (1-4) [(NeuAc(2-3)]GlcNAcβ(1-6)[Fucα(1-2)Galβ(1-3)]GalNAc-ol.
ST oligosaccharide luteal phase menstruation mucus Macaca; **glycoprotein** oligosaccharide luteal phase purifn monkey
IT Oligosaccharides, properties
RL: PRP (Properties); PUR (Purification or recovery); PREP (Preparation)
(acidic; structural studies on acidic oligosaccharides of bonnet monkey (Macaca radiata) luteal phase cervical mucus)
IT Ovarian cycle
(luteal phase; structural studies on acidic oligosaccharides of bonnet monkey (Macaca radiata) luteal phase cervical mucus)
IT Glycoproteins, specific or class
RL: PUR (Purification or recovery); PREP (Preparation)
(secretory; structural studies on acidic oligosaccharides of bonnet monkey (Macaca radiata) luteal phase cervical mucus)
IT Macaca radiata
Mucus
(structural studies on acidic oligosaccharides of bonnet monkey (Macaca radiata) luteal phase cervical mucus)
IT 101627-94-5P 184904-39-0P 184904-40-3P 184904-42-5P 184904-43-6P

184904-44-7P 184904-45-8P
RL: PRP (Properties); PUR (Purification or recovery); PREP (Preparation)
(luteal phase-specific; structural studies on acidic oligosaccharides of bonnet monkey (Macaca radiata) luteal phase cervical mucus)

L4 ANSWER 26 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1996:296511 CAPLUS
DN 125:36206
ED Entered STN: 18 May 1996
TI Isolation and characterization of a boron-rhamnogalacturonan-II complex from cell walls of sugar beet pulp
AU Ishii, Tadashi; Matsunaga, Toshiro
CS Forestry and Forest Products Research Institute, Ibaraki, 305, Japan
SO Carbohydrate Research (1996), 284(1), 1-9
CODEN: CRBRAT; ISSN: 0008-6215
PB Elsevier
DT Journal
LA English
CC 44-7 (Industrial Carbohydrates)
AB A B-polysaccharide complex, containing 0.12 weight% B, was isolated from a Driselase digest of sugar beet (Beta vulgaris L.) cell walls by **ion-exchange** and gel-permeation chromatog. The polysaccharide moiety contained 2-O-methylfucose, rhamnose, fucose, 2-O-methylxylose, arabinose, apiose, galactose, aceric acid, galacturonic acid, and glucuronic acid residues, and thiobarbituric acid-assay pos. sugars, presumably 3-deoxy-D-manno-2-octulosonic acid and 3-deoxy-D-lyxo-2-heptulosaric acid. Methylation anal., together with **glycosyl** composition anal., showed that the polysaccharide was a typical rhamnogalacturonan-II (RG-II), a structurally complex pectic polysaccharide present in the primary cell walls of plants. 11B NMR spectrometry showed that the B was present as a tetrahedral **borate** -diol diester. Approx. 70% of B was released by treating the B-RG-II complex at pH 4.8 and 40°.
ST boron rhamnogalacturonan complex sugar beet cell
IT Cell wall
(isolation and characterization of boron-rhamnogalacturonan-II complexes from cell walls of sugar beet pulp)
IT Pectic substances
RL: PUR (Purification or recovery); PREP (Preparation)
(isolation and characterization of boron-rhamnogalacturonan-II complexes from cell walls of sugar beet pulp)
IT Beet
(sugar, isolation and characterization of boron-rhamnogalacturonan-II complexes from cell walls of sugar beet pulp)
IT 7440-42-8DP, Boron, complexes with rhamnogalacturonan-II 39280-21-2DP, Rhamnogalacturonan, boron complexes
RL: PUR (Purification or recovery); PREP (Preparation)
(isolation and characterization of boron-rhamnogalacturonan-II complexes from cell walls of sugar beet pulp)

L4 ANSWER 27 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1996:150137 CAPLUS
DN 124:253690
ED Entered STN: 14 Mar 1996
TI Advanced **glycation** end product (AGE): characterization of the products from the reaction between D-glucose and serum **albumin**
AU Wu, James T.; Tu, Ming-Chieh; Zhung, Ping
CS School Medicine, University Utah, Salt Lake City, UT, 84108, USA
SO Journal of Clinical Laboratory Analysis (1996), 10(1), 21-34
CODEN: JCANEM; ISSN: 0887-8013
PB Wiley-Liss
DT Journal
LA English

CC 6-3 (General Biochemistry)
Section cross-reference(s): 9
AB Bovine serum **albumin** (BSA) was incubated with glucose to study how the advanced **glycation** end products (AGEs) are formed and what methods can be used for their identification and isolation. The reaction was monitored by **boronated** affinity gel, size-exclusion and **ion-exchange** chromatog., and chromatofocusing. Reaction products were also characterized by fluorescence measurement, fructosamine assay, and PAGE. Based on the measurement of AGE-associated fluorescence (excitation, 370 nm; emission, 440 nm), it was found that the AGEs could be detected as early as 3 days of incubation. The fluorescence was always associated with the larger mols. of crosslinking product resulting from the reaction between BSA and glucose. The overall fluorescence intensity increased with incubation time, and the fluorescence of the highest intensity was found with the AGE product largest in size. As with the Amadoriproduct, AGE was also bound to the **boronated** gel column but with an even higher affinity. Compared to the original **albumin** monomer, AGE mols. were not only larger in size but also had lower pIs and carried more neg. charges. Both the size and the neg. charges of AGEs continued to increase over time during incubation. This resulted in a group of crosslinking mols. heterogeneous in size and charge. These results will aid in both the isolation and selection of appropriate AGE mols. for the preparation of anti-AGE antibodies, calibrator, and control in the development of an AGE immunoassay.
ST advanced **glycation** end product glucose **albumin**
IT Albumins, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(characterization of advanced **glycation** end product from reaction between D-glucose and serum **albumin**)
IT Glycoproteins, specific or class
RL: ANT (Analyte); BSU (Biological study, unclassified); MFM (Metabolic formation); PRP (Properties); ANST (Analytical study); BIOL (Biological study); FORM (Formation, nonpreparative)
(AGE (advanced **glycosylation** end product), characterization of advanced **glycation** end product from reaction between D-glucose and serum **albumin**)
IT 50-99-7, D-Glucose, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(characterization of advanced **glycation** end product from reaction between D-glucose and serum **albumin**)

L4 ANSWER 28 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1995:405663 CAPLUS
DN 122:182330
ED Entered STN: 09 Mar 1995
TI Three assays for glycohemoglobin compared
AU Turpeinen, Ursula; Karjalainen, Ulla; Stenman, Ulf-Hakan
CS Helsinki Univ. Central Hosp., Helsinki, 00290, Finland
SO Clinical Chemistry (Washington, D. C.) (1995), 41(2), 191-5
CODEN: CLCHAU; ISSN: 0009-9147
PB American Association for Clinical Chemistry
DT Journal
LA English
CC 9-3 (Biochemical Methods)
Section cross-reference(s): 13
AB Using 123 specimens, the authors compared the concordance of three different methods for determining glycoHb (GHb): the Diamat (Bio-Rad Labs.), an automated analyzer measuring HbA1c by **cation-exchange** chromatog.; an assay with the IMx analyzer (Abbott Labs.), based on **boronate** affinity binding; and an HPLC method measuring HbA1c by **cation-exchange** chromatog. on a PolyCAT A column (PolyLC Inc.). Pearson's correlation coefficient between PolyCAT A and Diamat was 0.900 (mean) and between PolyCAT A and IMx, 0.857. However, up to 2-fold

differences were seen in some samples. The proportion of GHb was consistently lower with the PolyCAT A method than with the other two assays, apparently because of better separation of HbA1c from nonglycated coeluting forms of Hb. The difference in **glycation** percentage between the PolyCAT A and Diamat methods is 2-3% over the whole concentration range. These results point to the limitations of Diamat as a reference method to be used to calibrate other methods for determining HbA1c. Further, a switch from one method to another is likely to cause considerable problems in the clin. follow-up of certain patients.

ST blood glycoHb detn chromatog; Hb A1c detn HPLC

IT Hemoglobins
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(glyco-, three assays for glycoHb compared)

IT 62572-11-6, Hemoglobin A1c
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(three assays for glycoHb compared)

L4 ANSWER 29 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1995:352414 CAPLUS
DN 122:130152
ED Entered STN: 15 Feb 1995
TI Iduronic acid-rich proteoglycans (PGIdoA) and human post-burn scar maturation: isolation and characterization
AU Garg, Hari G.; Siebert, John W.; Garg, Arvin; Neame, Peter J.
CS Department of Biological Chemistry and Molecular Pharmacology, Harvard Medical School at Shriners Burns Institute and Massachusetts General Hospital, Boston, MA, 02114, USA
SO Carbohydrate Research (1995), 267(1), 105-13
CODEN: CRBRAT; ISSN: 0008-6215
PB Elsevier
DT Journal
LA English
CC 14-9 (Mammalian Pathological Biochemistry)
AB Proteoglycans (PGs) were extracted from human hypertrophic and normal scar tissues from two different stages of maturation after burn injury, under dissociative conditions (4 M guanidinium chloride containing proteinase inhibitors). The exts. were fractionated by **ion-exchange** chromatog., followed by ethanol precipitation, to give PG-containing iduronic acid (PGIdoA). The size of the PGIdoA decreased with the maturation of scars. **Glycosaminoglycan** (GAG) chains from PGIdoA were released by alkaline **borohydride** treatment, and their Mr values were evaluated by polyacrylamide gel electrophoresis. The Mr values for PGIdoA protein cores of the hypertrophic scars (5+ years and 2-5 yr) and normal scar (5+ years and 2-5 yr) were 22.6, 25, 19 and 21 KDa, resp. The iduronic acid content of PGIdoA from both types of scar increased in their maturation phase. The Mr values of PGIdoA decreased with maturation. PGIdoA carried the sulfate group mainly attached at C-4 of the 2-amino-2-deoxy-D-galactose residue. The NH2-terminal amino acid sequences of all the PGIdoA were similar to those of normal human skin or bone PG II (decorin) (i.e., Asp-Glu-Ala-B-Gly-Ile-Gly-Pro-Glu-Val-Pro-Asp-Asp-Arg).

ST iduronic acid rich proteoglycan burn scar

IT Burn
Wound healing
(structural changes in iduronic acid-rich proteoglycans in burn scar maturation in humans)

IT Proteoglycans, biological studies
RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(iduronic acid-rich, structural changes in iduronic acid-rich

proteoglycans in burn scar maturation in humans)
IT Skin, disease
(scar, structural changes in iduronic acid-rich proteoglycans in burn scar maturation in humans)
IT 3402-98-0, Iduronic acid
RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(structural changes in iduronic acid-rich proteoglycans in burn scar maturation in humans)

L4 ANSWER 30 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1995:55046 CAPLUS
DN 122:3693
ED Entered STN: 08 Nov 1994
TI Transport of **Glycosides** through Liquid Organic Membranes Mediated by Reversible Boronate Formation is a Diffusion-Controlled Process
AU Morin, Gregory T.; Hughes, Martin Patrick; Paugam, Marie-France; Smith, Bradley D.
CS Department of Chemistry and Biochemistry, University of Notre Dame, Notre Dame, IN, 46556, USA
SO Journal of the American Chemical Society (1994), 116(20), 8895-901
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA English
CC 6-1 (General Biochemistry)
Section cross-reference(s): 68
AB The ability of phenylboronic acid, [3-(1-adamantylcarboxamido)phenyl] **boronic** acid, and diphenylborinic acid to extract and transport p-nitrophenyl β-D-glucopyranoside (glucoside), p-nitrophenyl β-D-galactopyranoside (galactoside), and p-nitrophenyl β-D-mannopyranoside (mannoside) through a liquid organic membrane, in the presence of trioctylmethylammonium or tetrabutylammonium chloride, was determined Under the conditions examined, **glycoside** transport was facilitated by the reversible formation of covalent tetrahedral, anionic **glycoside-boronate** complexes, which partitioned into the organic **membrane** as lipophilic **ion** pairs. The results of various expts. indicated the rate-limiting step in the transport process was diffusion of the solutes through the narrow unstirred boundary layers adjacent the organic/aqueous interfaces. A plot of **glycoside** transport rate vs. **glycoside** extraction constant, Kex, formed an approx. bell-shaped relation. Maximal transport occurred when the carrier admixt. had an extraction constant of log Kex(max) .apprx. 2.2. Under low extraction conditions (Kex < Kex(max)), movement of the **glycoside** from the receiving phase into the organic membrane was the rate-determining step, and under high extraction conditions (Kex > Kex(max)), exit from the membrane into the receiving phase was rate-determining Because transport was dependent on Kex, an anal. of the structural and environmental factors that controlled transport could be reduced to an anal. of the factors that changed Kex relative to Kex(max). The factors examined included the following; pH, **boron** acid acidity, diol structure, polarity of the organic layer, **boron** acid lipophilicity, **glycoside** lipophilicity, quaternary ammonium lipophilicity, and the presence of competing lipophilic anions. The importance of Kex(max) as the parameter determining transport stereoselectivity is discussed.
ST **glycoside** transport org membrane boronate formation
IT Transport process and property
(transport of **glycosides** through liquid organic membranes mediated by reversible boronate formation is a diffusion-controlled process)
IT Galactosides

Glycosides
RL: BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); BIOL (Biological study); PROC (Process)
(transport of **glycosides** through liquid organic membranes mediated by reversible boronate formation is a diffusion-controlled process)

IT Biological transport
(diffusion, transport of **glycosides** through liquid organic membranes mediated by reversible boronate formation is a diffusion-controlled process)

IT **Glycosides**
RL: BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); BIOL (Biological study); PROC (Process)
(mannosides, transport of **glycosides** through liquid organic membranes mediated by reversible boronate formation is a diffusion-controlled process)

IT Molecular structure-property relationship
(transport, transport of **glycosides** through liquid organic membranes mediated by reversible boronate formation is a diffusion-controlled process)

IT 56-23-5, Carbon tetrachloride, biological studies 98-80-6, Phenylboronic acid 1112-67-0, Tetrabutylammonium chloride 1300-21-6, Dichloroethane 2492-87-7, p-Nitrophenyl β-D-glucopyranoside 2622-89-1, Diphenylborinic acid 3150-24-1, p-Nitrophenyl β-D-galactopyranoside 5137-55-3, Trioctylmethylammonium chloride 7601-89-0, Sodium perchlorate 7647-14-5, Sodium chloride, biological studies 35599-02-1, p-Nitrophenyl β-D-mannopyranoside 155535-81-2
RL: BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); BIOL (Biological study); PROC (Process)
(transport of **glycosides** through liquid organic membranes mediated by reversible boronate formation is a diffusion-controlled process)

L4 ANSWER 31 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1994:600268 CAPLUS
DN 121:200268
ED Entered STN: 29 Oct 1994
TI Comparison of seven methods for the determination of **glycated** hemoglobins
AU Niederau, Christoph M.; Reinauer, H.
CS Diabetes-Forschungsinst., Heinrich-Heine-Univ., Duesseldorf, D-40225, Germany
SO Klinisches Labor (1993), 39(12), 1009-14
CODEN: KLLAEA; ISSN: 0941-2131
DT Journal
LA English
CC 9-16 (Biochemical Methods)
Section cross-reference(s): 14
AB Within the last 2 yr several new reagents or instruments for the determination of

glycated Hbs have become available. Some of them improved the handling of conventional methods, others are new technologies. Two new HPLC systems, 1 new fully mechanized **boronate** ester affinity system and 2 new immunoassays were compared to a routine HPLC **ion -exchange** chromatog. system and an electrophoretic system. The different procedures for measuring **glycated** Hbs were compared using samples from diabetics. Some information about technol. specifications and performance data of the different systems, mainly from the literature, are presented. The methods tested were sufficiently comparable. Differences between the methods could be minimized by using an appropriate calibration method or material. There is an obvious need for a reference method or a certified reference material to get perfect

comparability and data about accuracy.
ST Hb A1C detn HPLC immunoturbidimetry diabetes; electrophoresis Hb A1C detn; affinity chromatog Hb A1C detn
IT Diabetes mellitus
(**glycated** Hb methods comparison in diabetes)
IT Hemoglobins
RL: ANT (Analyte); ANST (Analytical study)
(glyco-, **glycated** Hb methods comparison in diabetes)
IT 62572-11-6, Hb A1C
RL: ANT (Analyte); ANST (Analytical study)
(**glycated** Hb methods comparison in diabetes)

L4 ANSWER 32 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1994:506024 CAPLUS
DN 121:106024
ED Entered STN: 03 Sep 1994
TI Sialylation and sulfation of the carbohydrate chains in respiratory mucins from a patient with cystic fibrosis
AU Lo-Guidice, Jean-Marc; Wieruszeski, Jean-Michel; Lemoine, Jerome; Verbert, Andre; Roussel, Philippe; Lamblin, Genevieve
CS Unite INSERM, Lille, 59045, Fr.
SO Journal of Biological Chemistry (1994), 269(29), 18794-813
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English
CC 14-14 (Mammalian Pathological Biochemistry)
AB Mucin glycopeptides were prepared from the sputum of a patient suffering from cystic fibrosis. The carbohydrate chains were released by alkaline **borohydride** treatment. Sialylated and sulfated oligosaccharide-alditols were purified by **ion-exchange** chromatog., gel filtration, and high performance anion-**exchange** chromatog. The structures of the oligosaccharide-alditols were determined by high resolution 1H NMR spectroscopy in combination with fast atom bombardment-mass spectrometry. Twenty-four oligosaccharides were characterized and illustrate the diversity of the carbohydrate chains of cystic fibrosis respiratory mucins. Among these 24 oligosaccharide-alditols, 15 are novel structures. Silylation may occur on the C-6 of the N-acetylgalactosamine involved in the carbohydrate-peptide linkage or on a terminal galactose residue, either on C-3 or on C-6. Sulfation may occur either on the C-3 of a terminal galactose residue or on the C-6 of a N-acetylglucosamine residue. The most complex structures contain sulfated derivs. of the H, X, or Y determinants or a sialylated and sulfated derivative of the X determinant (Structure A).
ST oligosaccharide alditol cystic fibrosis micin
IT Oligosaccharides
RL: BIOL (Biological study)
(alditols, sialylation and sulfation of, in respiratory mucins from human with cystic fibrosis)
IT Sulfation
(of carbohydrate chains in respiratory mucins from human with cystic fibrosis)
IT Cystic fibrosis
(sialylation and sulfation of carbohydrate chains in respiratory mucins of human with)
IT Sputum
(sialylation and sulfation of carbohydrate chains in respiratory, of human with cystic fibrosis)
IT Carbohydrates and Sugars, biological studies
RL: BIOL (Biological study)
(alditols, oligosaccharide, sialylation and sulfation of, in respiratory mucins from human with cystic fibrosis)
IT Mucins
RL: BIOL (Biological study)

(sialo-, respiratory, of human with cystic fibrosis)

IT **Glycosidation**
(sialylation, of carbohydrate chains in respiratory mucins from human with cystic fibrosis)

IT Mucins
RL: BIOL (Biological study)
(sulfo-, respiratory, of human with cystic fibrosis)

IT 71764-07-3 90393-57-0 90393-58-1 111988-37-5 116751-20-3
120136-48-3 120151-70-4 129112-14-7 156842-24-9 156842-25-0
156842-26-1 156842-27-2 156842-28-3 156842-29-4 156842-30-7
156842-31-8 156842-32-9 156842-33-0 156842-34-1 156842-35-2
156842-36-3 156842-37-4 156842-38-5 156842-39-6
RL: PROC (Process)
(structure and characterization of, in respiratory mucins of human with cystic fibrosis)

L4 ANSWER 33 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1994:318028 CAPLUS
DN 120:318028
ED Entered STN: 25 Jun 1994
TI Structures of sulfated oligosaccharides in human trachea mucin glycoproteins
AU Sangadala, Sreedhara; Bhat, U. Ramadas; Mendicino, Joseph
CS Dep. Biochem., Univ. Georgia, Athens, GA, 30602, USA
SO Molecular and Cellular Biochemistry (1993), 126(1), 37-47
CODEN: MCBIB8; ISSN: 0300-8177
DT Journal
LA English
CC 6-4 (General Biochemistry)
Section cross-reference(s): 14
AB The structures of high mol. weight sulfated oligosaccharide chains in mucins purified from the sputum of a patient with cystic fibrosis and blood group H determinant were established. Reduced oligosaccharides released by treatment with alkaline **borohydride** were separated by **ion exchange** chromatog. on DEAE-Agarose and a fraction containing multisulfated chains was further purified by lectin affinity chromatog. to completely remove small amts. of sialylated chains. A major sulfated oligosaccharide fraction containing chains with an average of 160 to 200 sugar residues was isolated by gel filtration on BioGel P-10 columns and individual subfractions were characterized by methylation anal., periodate oxidation and sequential **glycosidase** digestion before and after desulfation. Carbohydrate anal. yielded Fuc, Gal and GldNAc in a ratio of 1:2:2.1 and only one galactosaminitol residue for every 160-to 200 sugar residues. The average mol. weight of oligosaccharide chains in these fractions was between 27,000 and 40,000 daltons. Structural anal. showed that these high mol. weight chains contained varying amts. of the repeating unit. Only one in about every 10 repeating units contained sulfate esters. Several shorter chains which contain 2 to 3 sulfate esters were also isolated from this multisulfated oligosaccharide fraction. The structures proposed for these oligosaccharides indicate that they are lower mol. weight chains with the same general structure as those found in the high mol. weight sulfated oligosaccharides. Taken collectively, the results of these studies show that a major sulfated oligosaccharide fraction in respiratory mucin purified from the mucus of patients with cystic fibrosis contains high mol. weight branched chains that consist of a repeating oligosaccharide sequence with sulfate linked to the 6 positions of galactose and possibly GlcNAc residues in the side chains.
ST oligosaccharide sulfated mucin trachea cystic fibrosis; sputum mucin sulfated oligosaccharide cystic fibrosis
IT Carbohydrates and Sugars, biological studies
RL: BIOL (Biological study)
(of sulfated oligosaccharides of respiratory mucins of human in cystic fibrosis)

IT Sputum
Trachea (anatomical)
(sulfated oligosaccharides of mucins of, of human in cystic fibrosis, purification and structure of and disease state effect on)
IT Cystic fibrosis
(sulfated oligosaccharides of respiratory mucins of human in, purification and structure of)
IT Mucins
RL: BIOL (Biological study)
(sulfated oligosaccharides of, of sputum of human in cystic fibrosis, purification and structure of and disease state effect on)
IT Blood-group substances
RL: BIOL (Biological study)
(H, oligosaccharide structure of mucins of human trachea in relation to)
IT Oligosaccharides
RL: BIOL (Biological study)
(sulfates, of mucins of sputum of human in cystic fibrosis, purification and structure of and disease state effect on)
IT 147361-49-7
RL: BIOL (Biological study)
(of mucins of sputum of human in cystic fibrosis)

L4 ANSWER 34 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1994:264976 CAPLUS
DN 120:264976
ED Entered STN: 28 May 1994
TI Estimation of **glycosylated** hemoglobin by means of affinity chromatography on boron phenylagarose
AU Rabinovich, S. e.; Platonova, L. V.; Dyuzheva, T. G.
CS I. M. Sechenov Med. Acad., Moscow, Russia
SO Voprosy Meditsinskoi Khimii (1993), 39(5), 58-61
CODEN: VMDKAM; ISSN: 0042-8809
DT Journal
LA Russian
CC 9-3 (Biochemical Methods)
Section cross-reference(s): 14
AB When Hb AIc was estimated by affinity chromatog. and **boron** phenylagarose was used as a sorbent, the highest rate of Hb AIc binding with the sorbent was detected at pH 8.5-9.0 while the maximal elution of the protein occurred at 0.3-0.5M concentration of sorbitol used as an eluent. Content of Hb AIc, estimated in 56 patients with insulin-dependent diabetes mellitus, constituted 12.3 ± 0.4%, while in 20 healthy volunteers it was equal to 5.4 ± 0.2%, which are consistent with the literature data obtained by other methods. At the same time, the data of Hb AIc estimation by means of affinity chromatog. correlated exactly with the results of **ion exchange** chromatog. (r = 0.98), thus corroborating the validity of the procedure used. Only the stable ketoamine fraction of Hb AIc was found to interact with **boron** phenylagarose.
ST **glycosylated** Hb detn affinity chromatog; Hb AIc detn affinity chromatog; boron phenylagarose **glycosylated** Hb affinity chromatog
IT Hemoglobins
RL: ANT (Analyte); ANST (Analytical study)
(glyco-, determination of, by affinity chromatog. on boron phenylagarose)
IT Diabetes mellitus
(juvenile, **glycosylated** Hb determination in, by affinity chromatog. on boron phenylagarose)
IT 62572-11-6, Hemoglobin A1c
RL: ANT (Analyte); ANST (Analytical study)
(determination of, in humans by affinity chromatog. on boron phenylagarose)

L4 ANSWER 35 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1994:161662 CAPLUS
DN 120:161662
ED Entered STN: 02 Apr 1994
TI Process monitoring of the production of γ-interferon in recombinant Chinese hamster ovary cells
AU Nadler, Timothy K.; Paliwal, Sandeep K.; Regnier, Fred E.; Singhvi, Rahul; Wang, Daniel I. C.
CS Chemistry Department, Purdue University, West Lafayette, IN, 47907, USA
SO Journal of Chromatography (1994), 659(2), 317-20
CODEN: JOCRAM; ISSN: 0021-9673
DT Journal
LA English
CC 16-1 (Fermentation and Bioindustrial Chemistry)
AB The production of recombinant γ-interferon was monitored using HPLC methods. These methods distinguished between **glycosylated** and nonglycosylated forms of γ-interferon by complexing the carbohydrate with **borate**. Sufficient quantities of standard **glycosylated** γ-interferon were not available for peak identification, so immunol. techniques were used to identify γ-interferon variants. These techniques were validated with the nonglycosylated form. The nonglycosylated form was retained only on a **cation-exchange** column, while the **glycosylated** form, complexed with **borate**, was retained only on an anion-**exchange** column. Samples were drawn at 2-h intervals over a 60-h production cycle and analyzed by both anion- and **cation-exchange** chromatog. The production of each form was coincidental, and the **glycosylated** form of γ-interferon was produced in greater abundance than the nonglycosylated.
ST interferon HPLC CHO cell culture
IT Animal tissue culture
(γ-interferon determination in, by HPLC)
IT Chromatography, column and liquid
(high-performance, recombinant γ-interferon monitoring in animal cell cultures by)
IT Interferons
RL: BIOL (Biological study)
(γ, **glycosylated** and nonglycosylated, determination of, in CHO cell cultures by HPLC)

L4 ANSWER 36 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1994:69268 CAPLUS
DN 120:69268
ED Entered STN: 19 Feb 1994
TI D-Lysine reduces the nonenzymic **glycation** of proteins in experimental diabetes mellitus in rats
AU Sensi, M.; De Rossi, M.G.; Celi, F.S.; Cristina, A.; Rosati, C.; Perrett, D.; Andreani, D.; Di Mario, U.
CS Univ. Roma "La Sapienza", Rome, Italy
SO Diabetologia (1993), 36(9), 797-801
CODEN: DBTGAJ; ISSN: 0012-186X
DT Journal
LA English
CC 1-10 (Pharmacology)
AB D-Lysine, the non-physiol. isomer of L-lysine, can competitively reduce non-enzymic **glycation** of protein in vitro. To study the effect of D-lysine in vivo, 6-8-wk old Sprague-Dawley rats with streptozotocin-induced diabetes mellitus were treated from the time of diabetes diagnosis for 45 days with two daily s.c. injections of D-lysine (0.5 g · mL-1 · day-1). Another group of diabetic rats was only injected with equal vols. of physiol. saline (0.9% NaCl). **Glycated** Hb was measured by **ion exchange** chromatog., and **glycated** serum and lens proteins by **boronate** affinity gel chromatog. Serum and urinary creatinine

concns. were evaluated by the alkaline-picrate reaction. Urinary lysine concns. at mid- and end-study were evaluated by **cation exchange** chromatog. Blood glucose concns., serum creatinine levels and creatinine clearances, measured at the end of the study, were similar in both diabetic groups (> 22.0 mmol/L, ≤ 106 μmol/L and ≈ 0.02 mL/s, resp.). Urinary lysine concns. in D-lysine-treated diabetic animals were more than 50-fold higher than in placebo-treated diabetic rats. In D-lysine-treated vs placebo-treated diabetic animals, a statistically significant reduction was found in the levels of **glycated** Hb (stable HbA1; 3.00% vs 4.02%, $p < 0.05$; labile HbA1 = 3.92% vs 5.84%, $p < 0.005$), **glycated** serum proteins (1.40% vs 2.52%, $p < 0.05$) and **glycated** lens proteins (4.90% vs 5.98%, $p < 0.05$). Thus, D-lysine (i) is not nephrotoxic and (ii) causes a significant reduction of the early **glycation** products at the protein level. Therefore, the D-amino acid could be useful in attempting to control damaging phenomena associated with or due to an enhanced protein non-enzymic **glycation**.

ST lysine protein nonenzymic **glycation** diabetes; Maillard reaction inhibition diabetes lysine; Amadori product diabetes lysine

IT Proteins, biological studies
RL: RCT (Reactant); RACT (Reactant or reagent)
(**glycation** of, lysine inhibition of nonenzymic, Amadori product formation inhibition in relation to)

IT Diabetes mellitus
(nonenzymic **glycation** of proteins in, lysine inhibition of, Amadori product formation inhibition in relation to)

IT Maillard reaction
(nonenzymic **glycation** of proteins inhibition by lysine in diabetes in relation to)

IT Carbohydrates and Sugars, biological studies
RL: FORM (Formation, nonpreparative)
(Amadori compds., formation of, lysine inhibition of nonenzymic **glycation** of proteins in diabetes in relation to)

IT 923-27-3, D-Lysine
RL: BIOL (Biological study)
(nonenzymic **glycation** of proteins decrease by, in diabetes, Amadori product formation inhibition in relation to)

L4 ANSWER 37 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1993:446467 CAPLUS
DN 119:46467
ED Entered STN: 07 Aug 1993
TI Mucin synthesis and secretion in various human epithelial cancer cell lines that express the MUC-1 mucin gene
AU Dahiya, Rajvir; Kwak, Kyu Shik; Byrd, James C.; Ho, Samuel; Yoon, Wan Hee; Kim, Young S.
CS Dep. Med., Univ. California, San Francisco, CA, USA
SO Cancer Research (1993), 53(6), 1437-43
CODEN: CNREA8; ISSN: 0008-5472
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
AB Previous studies have suggested that mucin gene expression is tissue-specific; however, the relationship between unique mucin gene products and the biochem. properties of mucins is unknown. The purpose of this study was to determine the biochem. and mol. characteristics of mucin synthesized by adenocarcinoma cell lines derived from breast (ZR-75-1), stomach (MGC-803), pancreas (Capan-2), and lung (Chago K-1). Mucin was quantitated by [3H]glucosamine labeling and Sepharose CL-4B chromatog. The mucinous nature of the labeled high mol. weight glycoproteins (HMG) was verified by alkaline **borohydride** treatment, cesium chloride d. gradient ultracentrifugation, and sodium dodecyl sulfate-polyacrylamide gel electrophoresis. Specific mucin gene expression was determined using cDNA

probes for 2 distinct intestinal mucins (MUC-2 and MUC-3) and one breast cancer mucin (MUC-1). Specific core mucin proteins were confirmed by immunoblots using antibodies that recognize MUC-1, MUC-2, and MUC-3 core peptides. These expts. demonstrate that all cell lines contained HMG in the medium, cytosol, and membrane fractions. The HMG was mucinous in breast, pancreatic, and lung cell lines. In contrast, most of the HMG secreted by the gastric cell line was proteoglycan-like, due to its susceptibility to hyaluronidase, heparinase, and chondroitinase avidin-biotin complex. **Ion-exchange** (DEAE-Sephacel) chromatog. of [3H]glucosamine-labeled HMG demonstrated that the acidic or basic nature of the mucin was different in all cancer cell lines tested. Despite these differences, mRNA and immunoblot anal. suggest that all cell lines predominantly express MUC-1 apomucin, small amts. of MUC-2 apomucin, and no MUC-3. Immunopptn. of MUC-1-type mucin using the 139H2 monoclonal antibody demonstrated that different sizes of mucin peptides were present in all cell lines, corresponding to the known length polymorphism of this mucin. The amount and nature of carbohydrate epitopes were analyzed by immunoblots using anti-T (peanut lectin), anti-Tn (91S8 monoclonal antibody), and antisialosyl Tn (JT10e monoclonal antibody). T and Tn antigens were significantly higher in breast and pancreatic cells as compared with lung and gastric cell lines. These findings correlated with increased activities of polypeptidyl N-acetylgalactosaminyl transferase and β-1,3-galactosyltransferase. These expts. demonstrate that in contrast to colon cancer cell lines described previously, which expressed high levels of MUC-2 and MUC-3 mRNA, the mucin synthesized by breast, pancreatic, gastric, and lung cell lines is associated with high levels of MUC-1 mRNA, low levels of MUC-2 mRNA, and an absence of MUC-3 mRNA. However, the mucin in these cells differs greatly in amount, distribution, and biochem. and immunol. properties.

ST adenocarcinoma mucin gene MUC1 **glycosylation**

IT Ribonucleic acids, messenger
RL: BIOL (Biological study)
(for mucins, in human epithelial cancer cell lines)

IT Mucins
RL: FORM (Formation, nonpreparative)
(formation of, in human epithelial cancer cells, MUC-1 and MUC-2 mucin genes in relation to)

IT **Glycosidation**
(of mucins, of human epithelial cancer cell lines)

IT Gene, animal
RL: BIOL (Biological study)
(MUC-1 and MUC-2, for mucin, expression of, in human epithelial cancer cells)

IT Antigens
RL: BIOL (Biological study)
(Tn, of breast and pancreas cancer cells, of human, mucin formation in relation to)

IT Lung, neoplasm
Pancreas, neoplasm
Stomach, neoplasm
(adenocarcinoma, mucin formation and secretion by, of human, MUC-1 and MUC-2 mucin genes in)

IT Mucins
RL: FORM (Formation, nonpreparative)
(apo-, formation of, in human epithelial cancer cells, MUC-1 and MUC-2 mucin genes in relation to)

IT Antigens
RL: BIOL (Biological study)
(large T, of breast and pancreas cancer cells, of human, mucin formation in relation to)

IT Mammary gland
(neoplasm, adenocarcinoma, mucin formation and secretion by, of human, MUC-1 and MUC-2 mucin genes in)

IT 9075-15-4 97089-61-7
RL: BIOL (Biological study)
(of epithelial cancer cells, of human, T and Tn antigen expression in, mucin synthesis in relation to)

L4 ANSWER 38 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1993:403464 CAPLUS
DN 119:3464
ED Entered STN: 10 Jul 1993
TI Isolation and structural characterization of novel sialylated oligosaccharide-alditols from respiratory-mucus glycoproteins of a patient suffering from bronchiectasis
AU Klein, Andre; Carnoy, Christophe; Lamblin, Genevieve; Roussel, Philippe; Van Kuik, J. Albert; Vliegenthart, Johannes F. G.
CS Unite Prot., Inst. Natl. Sante Rech. Med., Lille, Fr.
SO European Journal of Biochemistry (1993), 211(3), 491-500
CODEN: EJBCAI; ISSN: 0014-2956
DT Journal
LA English
CC 6-4 (General Biochemistry)
Section cross-reference(s): 33
AB The carbohydrate chains of the respiratory-mucus glycoproteins of a patient (blood group O) suffering from bronchiectasis due to Kartagener's syndrome, were released by alkaline **borohydride** treatment of a pronase digest. The structures of 82 neutral and low-mol.-mass sialylated oligosaccharides have been described previously. In the present work, medium-size sialylated oligosaccharides were obtained after **ion-exchange** chromatog. and were subsequently separated into 36 fractions utilizing gel filtration, HPLC on normal-phase alkylamine-bonded silica and reverse-phase HPLC. From these fractions, six sialylated hepta- and octa-saccharide-alditols were characterized by employing 500-MHz 1H-NMR spectroscopy, in conjunction with fast-atom-bombardment mass spectroscopy and methylation anal.
ST sialylated oligosaccharide structure respiratory mucus **glycoprotein**
IT Mucins
RL: BIOL (Biological study)
(sialooligosaccharides of, of human, isolation and structural characterization of)
IT Respiratory tract
(mucosa, sialooligosaccharides of mucins of, of human, isolation and structural characterization of)
IT Oligosaccharides
RL: BIOL (Biological study)
(sialo-, branched, of respiratory-mucus glycoproteins, of human in bronchiectasis, isolation and structural characterization of)
IT 118447-83-9P 147859-75-4P 147859-76-5P 147893-96-7P 147893-97-8P 147893-98-9P
RL: PREP (Preparation)
(of respiratory-mucus glycoproteins, of human in bronchiectasis, isolation and structural characterization of)

L4 ANSWER 39 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1992:609576 CAPLUS
DN 117:209576
ED Entered STN: 28 Nov 1992
TI Nonenzymic **glycation** of type I collagen. The effects of aging on preferential **glycation** sites
AU Reiser, Karen M.; Amigable, Mary Ann; Last, Jerold A.
CS Sch. Med., Univ. California, Davis, CA, 95616-8542, USA
SO Journal of Biological Chemistry (1992), 267(34), 24207-16
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal

LA English
CC 13-3 (Mammalian Biochemistry)
AB The effects of aging were determined on preferential sites of glucose adduct formation on type I collagen chains. Two CNBr peptides, 1 from each type of chain in the type I tropocollagen mol., were investigated in detail: α1(I)CB3 and α2CB3-5. Together these peptides comprise .apprx.25% of the total tropocollagen mol. The CNBr peptides were purified from rat tail tendon, obtained from animals aged 6, 18, and 36 mo, by **ion-exchange** chromatog., gel filtrations, and HPLC. Sugar adducts were radiolabeled by reduction with NaB3H4. **Glycated** tryptic peptides were prepared from tryptic digests of α2CB3-5 and α1(I)CB3 by **boronate** affinity chromatog. and HPLC. Peptides were identified by sequencing and by compositional anal. Preferential sites of **glycation** were observed in both CB3 and α2CB3-5. Of the 5 lysine residues in CB3, Lys-434 was the favored **glycation** site. Of the 18 lysine residues and 1 hydroxylysine residue in α2CB3-5, 3 residues (Lys-453, Lys-479, and Lys-924) contained >80% of the glucose adducts on the peptide. Preferential **glycation** sites were highly conserved with aging. In collagen that had been **glycated** in vitro, the relative distribution of glucose adducts in old animals differed from that of young animals. In vitro expts. suggest that primary structure is the major determinant of preferential **glycation** sites but that higher order structure may influence the relative distribution of glucose adducts among these preferred sites.
ST collagen **glycation** senescence
IT Senescence
(collagen type I **glycation** in)
IT Tendon
(collagen type I **glycation** in, in senescence)
IT Amino acids, biological studies
RL: BIOL (Biological study)
(of collagen type I, in senescence, **glycation** in relation to)
IT **Glycosidation**
(**glycation**, of collagen type I in senescence)
IT Collagens, biological studies
RL: RCT (Reactant); RACT (Reactant or reagent)
(type I, **glycation** of, in senescence)
IT 56-87-1, Lysine, biological studies
RL: RCT (Reactant); RACT (Reactant or reagent)
(**glycation** of, of type I collagen in senescence)

L4 ANSWER 40 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1992:549927 CAPLUS
DN 117:149927
ED Entered STN: 17 Oct 1992
TI N-**Glycosylation** of membrane glycoproteins in retinol-deficient rat liver
AU Tauber, R.; Nuck, R.; Gerok, W.; Buechsel, R.; Koettgen, E.; Lohle, W.; Karasiewicz, Ch.; Reutter, W.
CS Inst. Klin. Chem. Biochem., Freie Univ. Berlin, Berlin, D-1000/19, Germany
SO Glycoconjugate Journal (1992), 9(3), 132-40
CODEN: GLJOEW; ISSN: 0282-0080
DT Journal
LA English
CC 18-2 (Animal Nutrition)
Section cross-reference(s): 13
AB The effect of vitamin A deficiency on N-linked oligosaccharides of membrane glycoproteins was studied in rat liver in order to evaluate the suggested role of retinol in protein N-**glycosylation**. First, oligosaccharides of newly synthesized glycoproteins from rough endoplasmic reticulum of vitamin A deficient liver were compared with that of pair-fed controls. Oligosaccharides were metabolically labeled with

D-[2-3H]mannose, released from the glycoproteins with endoglycosidase H, purified by reversed phase HPLC and **ion exchange** chromatog., and were reduced with sodium **borohydride**. HPLC fractionation of the oligosaccharide alditols showed that the glycoproteins carried mainly four oligosaccharide species, Glc1Man9GlcNAc2, Man9GlcNAc2, Man8GlcNAc2 and Man7GlcNAc2, in identical relative amts. in the vitamin A deficient and the control tissue. In particular, no increase in the proportion of short chain oligosaccharides was noted in vitamin A deficient liver. Second, the number of N-linked oligosaccharides was estimated in dipeptidylpeptidase IV (DPP IV), a major **glycoprotein** constituent of the hepatic plasma membrane, comparing the newly synthesized **glycoprotein** from rough endoplasmic reticulum and the mature form of DPP IV from the plasma membrane. No evidence was obtained that retinol deficiency caused incomplete **glycosylation** of this membrane **glycoprotein**. From these data, the suggested role of retinol as a cofactor involved in the synthesis of N-linked oligosaccharides of glycoproteins must be questioned.

ST **glycoprotein glycosylation** liver retinol

IT **Glycosidation**
(N-, of glycoproteins in liver, vitamin A deficiency noneffect on)

IT Glycoproteins, biological studies
RL: BIOL (Biological study)
(N-**glycosylation** of, in liver, vitamin A deficiency noneffect on)

IT Liver, metabolism
(glycoproteins N-**glycosylation** by, vitamin A deficiency noneffect on)

IT Oligosaccharides
RL: BIOL (Biological study)
(of glycoproteins, of liver)

IT 11103-57-4, Vitamin A
RL: BIOL (Biological study)
(deficiency of, liver **glycoprotein** N-**glycosylation** nonresponse to)

L4 ANSWER 41 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1992:546454 CAPLUS
DN 117:146454
ED Entered STN: 17 Oct 1992
TI Separation of neutral glycoasparagines according to their content of cis diol groups
AU Nomoto, Hiroshi; Yasukawa, Kiyoshi; Inoue, Yasuo
CS Fac. Sci., Univ. Tokyo, Tokyo, 113, Japan
SO Bioscience, Biotechnology, and Biochemistry (1992), 56(7), 1090-5
CODEN: BBBIEJ; ISSN: 0916-8451
DT Journal
LA English
CC 9-3 (Biochemical Methods)
Section cross-reference(s): 6, 33, 34
AB A procedure for obtaining pure glycoasparagine specimens was developed. This method uses **ion-exchange** chromatog. in a DEAE-Sephadex A-25 (**borate** form) column, using a linear gradient of **borate** buffer as the eluent. With no conversion, almost all the individual glycoasparagines, including some new ones, derived from ovalbumin could be isolated in pure form. By this **borate ion-exchange** chromatog. technique, different types of neutral glycoasparagines having differing abilities to form complexes with **borate** ions can be separated

ST glycoasparagine isolation **glycoprotein** liq chromatog; anion exchange borate chromatog glycoasparagine

IT Oligosaccharides
RL: ANST (Analytical study)

(asparagine-containing, separation of, by anion-exchange liquid chromatog.)

IT Ovalbumins
Glycoproteins, biological studies
RL: ANST (Analytical study)
(glycoasparagines of, separation of, by anion-exchange borate chromatog.)

IT Functional groups
(glycol, separation of glycoasparagines by chromatog. based on)

IT Chromatography, column and liquid
(anion-exchange, borate, of glycoasparagines)

IT 14213-97-9, Borate
RL: ANST (Analytical study)
(anion-exchange chromatog. of glycoasparagines in presence of)

IT 70-47-3D, Asparagine, **glycosylated**
RL: PROC (Process)
(separation of, from glycoproteins based on diol groups by anion-exchange liquid chromatog.)

L4 ANSWER 42 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1992:529583 CAPLUS
DN 117:129583
ED Entered STN: 04 Oct 1992
TI Different culture methods lead to differences in **glycosylation** of a murine IgG monoclonal antibody
AU Patel, Thakor P.; Parekh, Raj B.; Moellering, Bill J.; Prior, Christopher P.
CS Oxford GlycoSyst. Ltd., Abingdon/Oxon., OX14 1RG, UK
SO Biochemical Journal (1992), 285(3), 839-45
CODEN: BIJOAK; ISSN: 0306-3275
DT Journal
LA English
CC 15-3 (Immunochemistry)
AB A monoclonal IgG1 was produced by culture of a murine hydridoma (3.8.6) by three different methods, namely culture in ascites, in serum-free media and in serum-supplemented media. IgG1 was purified to homogeneity (as judged by SDS/PAGE under reducing conditions) from each medium by **ion-exchange** chromatog. and HPLC Protein A chromatog. Oligosaccharides were released from each IgG1 preparation by hydrazinolysis and radiolabeled by reduction with alkaline sodium **borotritide**, and profile anal. of the radiolabeled oligosaccharide alditols was performed by a combination of paper electrophoresis and gel-filtration chromatog. This anal. indicated clear and reproducible differences in the **glycosylation** patterns of the three IgG1 prepns. Sequential exoglycosidase anal. of individual oligosaccharides derived from each IgG1 preparation was used to define these differences. Ascites-derived material differed from serum-free-culture-derived material only with respect to the content of sialic acid. IgG1 derived from culture in serum-containing media had an intermediate sialic acid content and a lower incidence of outer-arm galactosylation than the other two prepns. These differences in **glycosylation** could not be induced in any IgG1 preparation by incubating purified IgG1 with ascites or culture medium. It is concluded that the **glycosylation** pattern of a secreted monoclonal IgG is dependent on the culture method employed to obtain it.
ST IgG **glycosylation** culture; monoclonal antibody **glycosylation** culture

IT Ascitic fluid
(monoclonal IgG differential **glycosylation** by hybridoma in culture in)

IT Animal tissue culture
(of B-cell hybridomas, IgG differential **glycosylation** in)

IT **Glycosidation**
(of monoclonal IgG in culture)

IT Sialic acids
RL: BIOL (Biological study)

(of monoclonal IgG oligosaccharides, in culture)
IT Oligosaccharides
RL: BIOL (Biological study)
(of monoclonal IgG, in culture)
IT Hybridoma
(B-cell, IgG differential **glycosylation** by, in culture)
IT Immunoglobulins
RL: RCT (Reactant); RACT (Reactant or reagent)
(G, monoclonal, **glycosylation** of, in culture)
IT **Glycosidation**
(galactosidation, of monoclonal IgG in culture)
IT 78392-81-1D, monoclonal IgG containing 84825-26-3D, monoclonal IgG containing
RL: FORM (Formation, nonpreparative)
(formation of, by hybridoma in culture)

L4 ANSWER 43 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1992:506997 CAPLUS
DN 117:106997
ED Entered STN: 20 Sep 1992
TI Multiple forms of a glucoamylase inhibitory factor from Aspergillus niger and its elution after adsorption onto raw wheat starch
AU Towprayoon, S.; Fujio, Y.; Ueda, S.
CS Sch. Energy Mater., King Mongkut's Inst. Technol., Bangkok, 10140, Thailand
SO World Journal of Microbiology & Biotechnology (1992), 8(2), 98-101
CODEN: WJMBEY; ISSN: 0959-3993
DT Journal
LA English
CC 7-3 (Enzymes)
AB An inhibitory factor (IF) from A. niger that inhibited the action of glucoamylase on raw starch was adsorbed tightly onto raw starch but was almost completely desorbed by 0.02M sodium **borate**. The IF was a **glycoprotein** and was partially purified by **ion-exchange** chromatog. into 3 active fractions.
ST glucoamylase inhibiting protein multiple form Aspergillus
IT Aspergillus niger
(glucoamylase inhibitor of, purification and characterization of multiple forms of)
IT Glycoproteins, specific or class
RL: BIOL (Biological study)
(glucoamylase-inhibiting, of Aspergillus niger, purification and characterization of multiple forms of)
IT 9032-08-0P, Glucoamylase
RL: BSU (Biological study, unclassified); BIOL (Biological study); PREP (Preparation)
(inhibitor, of Aspergillus niger, purification and characterization of multiple forms of)
IT 9005-25-8, Starch, uses
RL: USES (Uses)
(purification of glucoamylase inhibitor multiple forms of Aspergillus niger by adsorption and elution on, of wheat)

L4 ANSWER 44 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1992:168754 CAPLUS
DN 116:168754
ED Entered STN: 03 May 1992
TI Purification and properties of the elastase from Aspergillus fumigatus
AU Frosco, Marybeth; Chase, Theodore, Jr.; Macmillan, James D.
CS Cook Coll., Rutgers Univ., New Brunswick, NJ, 08903, USA
SO Infection and Immunity (1992), 60(3), 728-34
CODEN: INFIBR; ISSN: 0019-9567
DT Journal
LA English

CC 7-2 (Enzymes)

AB Elastase, a potential virulence factor from the opportunistic pathogen, A. fumigatus, was purified 220-fold from culture broth by fast-protein liquid chromatog. employing anion **exchange** (Q Sepharose fast flow), **cation exchange** (S Sepharose fast flow), and gel filtration (Superose 12). Purified to near homogeneity, the elastase had an apparent mol. weight of 32 kDa by SDS-PAGE (Ag stain), but a mol. weight of .apprx.19.1 kDa as determined by gel filtration on Superdex 75. The elastase was not **glycosylated** and was pos. charged at neutral pH, having a pI of 8.75. Inhibition by 0.2 mM phenylmethylsulfonyl fluoride (100%) and 0.21 mM leupeptin (60%) implied that the elastase is a serine protease. However, the enzyme was also inhibited by 5 mM EDTA (100%) and 10 mM 1,10-orthophenanthroline (30%), suggesting a requirement for divalent cations. The enzyme acted optimally at pH 7.4 and 45° in 50 mM Na **borate** buffer, but in Tris HCl, the pH optimum shifted to 8.8.

ST elastase Aspergillus

IT Aspergillus fumigatus
(elastase of, purification and properties of)

IT 9004-06-2P, Elastase
RL: PREP (Preparation)
(of Aspergillus fumigatus, purification and properties of)

L4 ANSWER 45 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1992:79604 CAPLUS

DN 116:79604

ED Entered STN: 06 Mar 1992

TI High-performance anion exchange-chromatography of neutral milk oligosaccharides and oligosaccharide alditols derived from mucin glycoproteins

AU Reddy, G. P.; Bush, C. Allen

CS Dep. Chem. Biochem., Univ. Maryland Baltimore Cty., Baltimore, MD, 21228, USA

SO Analytical Biochemistry (1991), 198(2), 278-84
CODEN: ANBCA2; ISSN: 0003-2697

DT Journal

LA English

CC 9-3 (Biochemical Methods)
Section cross-reference(s): 15, 33, 80

AB High-performance anion-exchange (HPAE) chromatog. under alkaline conditions (pH ≈ 13) has been used to sep. neutral oligosaccharides from human milk as well as oligosaccharide alditols isolated by alkaline **borohydride** degradation of O-linked glycoproteins having blood group A and H activities. Due to the diminished retention times of the alditols compared to their reducing counterparts, a very low base concentration (≈15 mM) was used in the fractionation of oligosaccharide alditols. The method appears to be ineffective in fractionation of monosaccharide alditols. Although the retention times generally increased with increasing oligosaccharide chain length, linkage of Fuc α-(1→2) to galactose and by Fuc α-(1→3) or Fuc α-(1→4) to glcNAc may decrease the retention times of both the alditols and the reducing oligosaccharides. Branching generally increased the retention times for oligosaccharide alditols. The retention times of isomers differing in the position of fucose substitution (LNF-1 vs. LNF-2) differed greatly while those of the linkage isomers LNF-2 and LNF-3 were similar but distinct. Pulsed amperometric detection is sensitive at the picomole level both for these underivatized oligosaccharides and alditols. Online desalting with an **ion-exchange membrane** has been found to be effective in preparative chromatog. of these oligosaccharides for NMR spectroscopy and mass spectrometry.

ST anion exchange HPLC oligosaccharide alditol; liq chromatog milk oligosaccharide; mucin **glycoprotein** oligosaccharide alditol

IT Chains, chemical
(length of, of oligosaccharides, anion-exchange HPLC in relation to)
IT Milk analysis
(neutral oligosaccharides anal. in, of humans by anion-exchange HPLC)
IT Monosaccharides
RL: ANT (Analyte); ANST (Analytical study)
(separation of, by anion-exchange HPLC)
IT Oligosaccharides
RL: ANT (Analyte); ANST (Analytical study)
(separation of, by anion-exchange HPLC, of human milk)
IT Carbohydrates and Sugars, preparation
RL: ANT (Analyte); ANST (Analytical study)
(alditols, separation of, by anion-exchange HPLC)
IT Chromatography, column and liquid
(high-performance, anion-exchange, of neutral milk oligosaccharides and oligosaccharide alditols from mucin glycoproteins)
IT Molecular structure-property relationship
(liquid chromatog., of oligosaccharides, anion-exchange high-performance)
IT Amperometry
(pulsed, after anion-exchange HPLC, of oligosaccharides and oligosaccharide alditols)
IT 50-69-1, Ribose 50-70-4, D-Glucitol, analysis 50-99-7, Glucose, analysis 58-86-6, Xylose, analysis 59-23-4, Galactose, analysis 69-65-8, Mannitol 87-99-0, Xylitol 147-81-9, Arabinose 488-81-3, Adonitol 608-66-2, Dulcitol 2152-56-9, Arabitol 3458-28-4, Mannose 3554-90-3 7578-25-8 13007-32-4 14116-68-8 16789-38-1 21973-23-9 25541-09-7 64003-51-6 73499-58-8 90393-60-5 90393-61-6 95632-88-5 96656-34-7 98359-76-3 114488-88-9 115465-73-1 138691-66-4 138691-67-5 138691-68-6 138691-69-7 138691-70-0 138707-41-2 138707-42-3 138707-43-4 138707-44-5 138707-45-6
RL: ANT (Analyte); ANST (Analytical study)
(separation of, by anion-exchange HPLC)

L4 ANSWER 46 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1991:511863 CAPLUS
DN 115:111863
ED Entered STN: 23 Sep 1991
TI Isolation and structural characterization of novel neutral oligosaccharide-alditols from respiratory-mucus glycoproteins of a patient suffering from bronchiectasis. 1. Structure of 11 oligosaccharides having the GlcNAcβ(1→3)Galβ(1→4)GlcNAcβ(1.fwd arw.6)GalNAc-ol structural element in common
AU Klein, Andre; Carnoy, Christophe; Lamblin, Genevieve; Roussel, Philippe; Van Kuik, J. Albert; De Waard, Pieter; Vliegenthart, Johannes F. G.
CS Unite Proteines, Inst. Natl. Sante Rech. Med., Lille, F-59045, Fr.
SO European Journal of Biochemistry (1991), 198(1), 151-68
CODEN: EJBCAI; ISSN: 0014-2956
DT Journal
LA English
CC 14-4 (Mammalian Pathological Biochemistry)
AB The carbohydrate chains of the respiratory-mucus glycoproteins of a patient (blood group O) suffering from bronchiectasis due to Kartagener's syndrome, were released by alkaline **borohydride** treatment of a pronase digest. Neutral oligosaccharides were obtained after **ion -exchange** chromatog. and were subsequently separated utilizing gel filtration. HPLC on normal-phase alkylamine-bonded silica and reverse-phase HPLC, into 46 fractions. From these fractions oligosaccharide-alditols have been characterized by employing 500-MHz 1H-NMR spectroscopy, in conjunction with fast-atom-bombardment mass spectroscopy, methylation anal. and sugar anal. Eleven novel oligosaccharide structures are described. Five of them have the common element Fucα(1→2)Galβ(1→3)GlcNAcβ(1→3)Galβ(1→4)GlcNAcβ(1→6)GalNAc-ol. Another six

possess Galβ(1→4)GlcNAcβ(1→3)Galβ(1→4)
GlcNAcβ(1→6)GalNAc-ol as common element.

ST oligosaccharide mucus **glycoprotein** bronchiectasis Kartagener syndrome

IT Glycoproteins, biological studies
RL: BIOL (Biological study)
(of respiratory mucus, oligosaccharides of, in bronchiectasis in Kartagener syndrome in human)

IT Oligosaccharides
RL: BIOL (Biological study)
(of respiratory-mucus glycoproteins, in bronchiectasis in Kartagener syndrome in human)

IT Mucus
(oligosaccharides of glycoproteins of, of respiratory tract in bronchiectasis in Kartagener syndrome in human)

IT Sputum
(oligosaccharides of mucus glycoproteins of, in bronchiectasis in Kartagener syndrome in human)

IT Respiratory tract
(disease, Kartagener syndrome, oligosaccharides of respiratory-mucus glycoproteins in bronchiectasis in, in human)

IT Bronchi
(diseases, bronchiectasis, oligosaccharides of respiratory-mucus glycoproteins in, in Kartagener syndrome in human)

IT 135777-26-3 135777-27-4 135777-28-5 135777-29-6 135777-30-9
135777-31-0 135777-32-1 135802-26-5 135802-27-6 135802-28-7
135802-29-8
RL: BIOL (Biological study)
(of respiratory-mucus glycoproteins, in bronchiectasis in Kartagener syndrome in human)

L4 ANSWER 47 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1991:425541 CAPLUS
DN 115:25541
ED Entered STN: 27 Jul 1991
TI **Glycosylated** hemoglobin assay and kit, and dihydroxyboryl residue-containing conjugates therefor
IN Sundrehagen, Erling
PA Holmes, Michael John, UK; Axis Research A/S
SO PCT Int. Appl., 47 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM G01N033-72
CC 9-5 (Biochemical Methods)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9013818	A1	19901115	WO 1990-EP820	19900511
	W: AU, BR, CA, FI, HU, JP, KR, NO, RO, SU, US				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, IT, LU, NL, SE				
	CA 2055430	AA	19901112	CA 1990-2055430	19900511
	CA 2055430	C	19990831		
	AU 9056670	A1	19901129	AU 1990-56670	19900511
	AU 642879	B2	19931104		
	EP 471774	A1	19920226	EP 1990-908231	19900511
	EP 471774	B1	19950125		
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	BR 9007357	A	19920421	BR 1990-7357	19900511
	JP 04506703	T2	19921119	JP 1990-507703	19900511
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	NO 9104372	A	19920109	NO 1991-4372	19911108
PRAI	NO 1989-1929	A	19890511		
	WO 1990-NO4	A	19900104		
	NO 1990-104	A	19900104		
	WO 1990-NO0	A	19900104		
	WO 1990-EP820	A	19900511		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 9013818	ICM	G01N033-72

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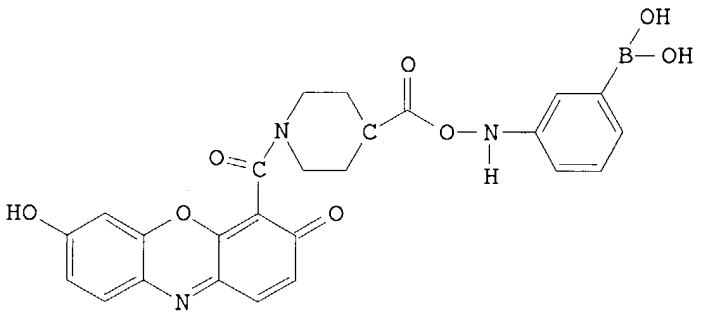

I

AB The title method comprises (1) optionally hemolyzing the sample to liberate any cell-bound Hb; (2) contacting the sample or Hb recovered therefrom according to 3 below with signal-forming mols. comprising a conjugate of ≥1 dihydroxyboryl residues or salts thereof; (3) separating **glycosylated** and nonglycosylated Hb, and any mols. bound thereto, from the sample or from the reaction mixture of 2; and (4) assessing the signal-forming mols. which have bound to the separated Hb, and/or any nonHb-bound signal-forming mols. A kit for performing the assay of the invention is also described. The method is especially useful for in vitro diagnosis and monitoring of diabetes mellitus. Thus, N-(resorufin)-4-carbonylpiperidine-4-carboxy cyclic acid-N-hydroxysuccinimide ester was reacted with m-aminophenylboronic acid hemisulfate, and the conjugate (I) was purified by HPLC. A sample of Hb was hemolyzed and diluted in hemolyzing assay buffer (containing HEPES and Triton X-100), and a mixture of 50% (volume/volume) butanol/EtOH and I was added. The formed precipitate was separated by centrifugation and redissolved in 0.05M HCl with 5% DMSO. Concns. of Hb and I conjugate were determined by absorption measurements. Using standard curves for known concns. of Hb and **glycosylated** Hb, the % **glycosylated** Hb was calculated For 4.9 and 11.2% **glycosylated** Hb (determined by an **ion exchange** method), the resp. molar ratio for conjugate Hb was 0.212 and 0.294. Other **boronic** acid derivative conjugates are also prepared

ST **glycosylated** Hb detn boronate conjugate; resorufin deriv aminophenylboronate conjugate **glycosylated** Hb

IT Haptoglobins
RL: ANST (Analytical study)
(as Hb precipitating agent, in **glycosylated** Hb determination with dihydroxyboryl-containing compound-label conjugate)

IT Sulfoxides
Alcohols, uses and miscellaneous
Amides, uses and miscellaneous
Ethers, uses and miscellaneous

Hydrocarbons, uses and miscellaneous
Ketones, uses and miscellaneous
RL: ANST (Analytical study)
(as Hb precipitation solvents, in **glycosylated** Hb determination with dihydroxyboryl-containing compound-label conjugate)

IT Metals, biological studies
RL: BIOL (Biological study)
(complexing agents for, in **glycosylated** Hb determination with dihydroxyboryl-containing compound-label conjugate)

IT Diabetes mellitus
(diagnosis and monitoring of, **glycosylated** Hb determination for, dihydroxyboryl-containing compound-label conjugate in)

IT Detergents
Heat, biological effects
Sound and Ultrasound
(for hemolysis in **glycosylated** Hb determination with dihydroxyboryl-containing compound-label conjugate)

IT Hemoglobins
RL: ANST (Analytical study)
(**glycosylated** Hb separation from, dihydroxyboryl-containing compound-label conjugates for **glycosylated** Hb determination in relation to)

IT Chelating agents
Hemolysins
Glycols, uses and miscellaneous
RL: ANST (Analytical study)
(in **glycosylated** Hb determination with dihydroxyboryl-containing compound-label conjugate)

IT Solvents
(organic, in **glycosylated** Hb determination with dihydroxyboryl-containing compound-label conjugate)

IT Antibodies
RL: ANST (Analytical study)
(to Hb, in **glycosylated** Hb determination with dihydroxyboryl-containing compound-label conjugate)

IT Proteins, specific or class
RL: ANST (Analytical study)
(Hb-binding, as Hb precipitating agent, in **glycosylated** Hb determination with dihydroxyboryl-containing compound-label conjugate)

IT Functional groups
(dihydroxyboryl, in conjugate with signal-forming mol. for **glycosylated** Hb determination)

IT Hemoglobins
RL: ANT (Analyte); ANST (Analytical study)
(glyco-, determination of, dihydroxyboryl-containing compound-label conjugates in)

IT Spiro compounds
RL: ANST (Analytical study)
(oxazines, conjugates with signal-forming mols., for **glycosylated** Hb determination)

IT 64-17-5, Ethanol, uses and miscellaneous 67-63-0, 2-Propanol, uses and miscellaneous 68-12-2, uses and miscellaneous 71-36-3, Butanol, uses and miscellaneous 109-99-9, Tetrahydrofuran, uses and miscellaneous 7646-85-7, Zinc chloride, uses and miscellaneous 7758-98-7, Sulfuric acid copper(2+) salt (1:1), uses and miscellaneous
RL: USES (Uses)
(for Hb precipitation in **glycosylated** Hb determination with dihydroxyboryl-containing compound-label conjugate)

IT 125440-90-6D, signal-forming mol. conjugates
RL: ANST (Analytical study)
(for **glycosylated** Hb determination)

IT 113-00-8, Guanidine 9002-93-1, Triton X-100

RL: ANST (Analytical study)
(for hemolysis in **glycosylated** Hb determination with dihydroxyboryl-containing compound-label conjugate)

IT 7440-50-8, Copper, uses and miscellaneous 7440-66-6, Zinc, uses and miscellaneous
RL: USES (Uses)
(in **glycosylated** Hb determination with dihydroxyboryl-containing compound-label conjugate)

IT 30418-59-8DP, conjugates with FITC and other signal-forming mols. 30418-59-8DP, iodine-125-labeled 134649-91-5P 134649-92-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, for **glycosylated** Hb determination)

L4 ANSWER 48 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1991:181503 CAPLUS
DN 114:181503
ED Entered STN: 17 May 1991
TI Determination of **glycated** hemoglobin by affinity chromatography
AU Oremek, G.; Seiffert, U. B.; Kirsten, R.
CS Zent. Inn. Med., Johann-Wolfgang-Goethe-Univ., Frankfurt/Main, D-6000/70, Germany
SO Zeitschrift fuer Medizinische Laboratoriumsdiagnostik (1990), 31(8), 438-44
CODEN: ZMLADB; ISSN: 0323-5637
DT Journal
LA German
CC 9-3 (Biochemical Methods)
AB A comparative investigation of **glycosylated** Hb detns. in human blood by **boronate** affinity chromatog. revealed relatively good agreements with **ion-exchange** chromatog. and gel-electrophoresis results, with a day-to-day coefficient of variation of 1.46% and standard deviation of 0.097 for the former method. The concordance/discordance of the methods are compared, and possible interferences discussed.
ST **glycosylated** Hb blood affinity chromatog
IT Chromatography, column and liquid
(affinity, **glycosylated** Hbs determination in blood of human by, suitability of)
IT Hemoglobins
RL: ANT (Analyte); ANST (Analytical study)
(glyco-, determination of, in blood of human, boronate affinity chromatog. suitability for)

L4 ANSWER 49 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1990:629191 CAPLUS
DN 113:229191
ED Entered STN: 22 Dec 1990
TI The carbohydrate structures of a mouse monoclonal IgG antibody OKT3
AU Krotkiewski, Hubert; Groenberg, Gunnar; Krotkiewska, Bozena; Nilsson, Bo; Svensson, Sigfrid
CS Dep. Carbohydrate Chem., Univ. Lund, Lund, S-223 70, Swed.
SO Journal of Biological Chemistry (1990), 265(33), 20195-201
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English
CC 15-3 (Immunochemistry)
AB A mouse monoclonal antibody OKT3, of IgG2a isotype, was isolated from hybridoma culture fluid. Sugar anal. showed the presence of sialic acid, galactose, mannose, fucose, and N-acetylglucosamine, i.e. sugars typical for N-**glycosidically** linked carbohydrate chains. The absence of N-acetylgalactosamine revealed that O-**glycosidically** linked carbohydrates were not present. The purified antibody was reduced, alkylated, and separated into heavy and light chains, and all carbohydrates

were shown to be associated with the heavy chains. The N-linked carbohydrate chains were isolated as alditols using strong alkaline-**borohydride** degradation and further fractionated on a Con A-Sepharose column and high performance **ion exchange** chromatog. with pulsed amperometric detection. Structural anal. was carried out on the isolated oligosaccharide alditols by chemical analyses, fast atom bombardment mass spectrometry, and 500-MHz 1H NMR spectroscopy. Triantennary and biantennary types of structures were found. The triantennary structures were present as trisialo and tetrasialo forms without fucose; the tetrasialo forms were shown to contain a sequence of New5Acα2-3Galβ1-3[Neu5Acα2-6]GlcNAcβ1- on one of the branches. The biantennary structures were present as completely sialylated nonfucosylated species and as asialo-, agalacto-, and partially fucosylated structures.

ST carbohydrate structure OKT3 monoclonal antibody

IT Oligosaccharides
RL: BIOL (Biological study)
(of IgG monoclonal antibody to CD3 antigen, structure of)

IT Antigens
RL: BIOL (Biological study)
(CD3, IgG monoclonal antibody to, oligosaccharide structure of)

IT Immunoglobulins
RL: BIOL (Biological study)
(G, monoclonal, to CD3 antigen, oligosaccharide structure of)

IT 83411-82-9 93375-83-8 103816-30-4
RL: BIOL (Biological study)
(as oligosaccharide of monoclonal antibody to CD3 antigen)

L4 ANSWER 50 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1989:570573 CAPLUS
DN 111:170573
ED Entered STN: 10 Nov 1989
TI Fully automated fluorescence assay for determining total homocysteine in plasma
AU Refsum, Helga; Ueland, Per Magne; Svardal, Asbjoern Martin
CS Dep. Pharmacol. Toxicol., Univ. Bergen, Bergen, N-5021, Norway
SO Clinical Chemistry (Washington, DC, United States) (1989), 35(9), 1921-7
CODEN: CLCHAU; ISSN: 0009-9147
DT Journal
LA English
CC 9-15 (Biochemical Methods)
Section cross-reference(s): 13

AB Homocysteine exists in human plasma as various (mixed) disulfides. Most plasma homocysteine (about 70%) is protein bound, probably via a disulfide bond to **albumin**, whereas homocysteine-cysteine mixed disulfide is the predominating form in the free fraction. A method is presented for the determination of total homocysteine, which includes both fractions. Plasma was initially treated with sodium **borohydride** to reduce the disulfide bonds, and the liberated thiols were derivatized with monobromobimane. The derivatized sample, still containing the plasma proteins, was injected onto a strong **cation-exchange** column, from which the homocysteine derivative was directed by column switching into a cyclohexyl silica (CH) column. The homocysteine derivative was top-concentrated on the CH column, then rapidly eluted with a steep gradient of methanol. Both the derivatization procedure and chromatog. were performed with a combined sample processor and sample injector from Gilson (Model 232-401). Within-run and between-run precision was <4%, and the detection limit of 0.2 pmol was sufficiently low for monitoring homocysteine in plasma. The assay was verified against two established manual methods for the determination of total homocysteine in plasma. This, the first fully automated assay for total plasma homocysteine, allows the

unattended anal. of 70 samples per 24 h.
ST plasma homocysteine detn; automated fluorometry homocysteine; cation exchange liq chromatog homocysteine
IT Blood analysis
(homocysteine determination in, by automated fluorometry)
IT 16940-66-2, Sodium borohydride
RL: ANST (Analytical study)
(as reducing agent, in homocysteine determination in blood plasma)
IT 462-10-2, Homocystine 6027-13-0, Homocysteine
RL: ANT (Analyte); ANST (Analytical study)
(determination of, in blood plasma by cation-exchange chromatog. and automated
fluorometry)

L4 ANSWER 51 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1989:550983 CAPLUS
DN 111:150983
ED Entered STN: 28 Oct 1989
TI Cytokeratin 13 contains O-**glycosidically** linked N-acetylglucosamine residues
AU King, Ian A.; Hounsell, Elizabeth F.
CS Clin. Res. Cent., Med. Res. Counc., Harrow, HA1 3UJ, UK
SO Journal of Biological Chemistry (1989), 264(24), 14022-8
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English
CC 13-2 (Mammalian Biochemistry)
Section cross-reference(s): 6
AB The **glycosylation** of human cytokeratins was investigated in cultured human keratinocytes and A431 cells by metabolic labeling with [3H]glucosamine. In the presence of tunicamycin, keratinocytes incorporated [3H]glucosamine into a vitamin A-regulated acidic 53-kDa component of the cytoskeleton which was identified as cytokeratin 13 by 1- and 2-dimensional immunoblotting with specific monoclonal antibodies. This cytoskeletal component was also labeled with [3H]glucosamine in A431 cells but not in KB cells, which do not express cytokeratin 13. Its labeling was resistant to tunicamycin, suggesting that [3H]glucosamine had not been incorporated into N-linked oligosaccharides. Acid hydrolysis followed by paper and **ion-exchange** chromatog. showed that the radioactivity in electrophoretically purified cytokeratin 13 was still present as glucosamine. Radioactivity was completely removed by treatment with β-N-acetylglucosaminidase, suggesting that it was present in terminal N-acetylglucosamine residues. The labeled carbohydrate was released by alkaline **borohydride** treatment and was bound by a phenylboronic acid column, indicating an O-**glycosidic** linkage. On Bio-Gel P-2 columns, the β-eliminated carbohydrate co-eluted with authentic N-acetylglucosaminitol. Thus, cytokeratin 13 contains single residues of N-acetylglucosamine O-**glycosidically** linked to the polypeptide chain.
ST cytokeratin 13 **glycosylation** epithelium
IT Epithelium
(cytokeratin 13 **glycosylation** by cells of, of human)
IT **Glycosidation**
(of cytokeratin 13, by epithelium cells of human)
IT Keratins
RL: RCT (Reactant); RACT (Reactant or reagent)
(13, **glycosylation** of, by epithelial cells of human)

L4 ANSWER 52 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1989:530265 CAPLUS
DN 111:130265
ED Entered STN: 14 Oct 1989
TI Zone analysis device for determination of **glycated** and

nonglycated hemoglobin
IN May, Kieth; Richards, Ian
PA Unilever PLC, UK
SO Brit. UK Pat. Appl., 11 pp.
CODEN: BAXXDU
DT Patent
LA English
IC ICM G01N033-50
ICS G01N033-52
CC 9-1 (Biochemical Methods)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	GB 2206411	A1	19890105	GB 1988-15610	19880630
PRAI	GB 1987-15282		19870630		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
GB 2206411	ICM	G01N033-50
	ICS	G01N033-52

AB The relative proportions of **glycated** and nonglycated Hb are determined by applying the sample to a 1st zone of a device which binds **glycated** Hb, eluting through a 2nd zone which binds all residual Hb that passes through the 1st zone, and visualizing bound Hb by a color-producing reaction involving the peroxidative activity of Hb. The 1st zone has **boronic** acid linked to the carrier. The 2nd zone contains an **ion exchange resin.**
ST **glycated** Hb detn zone affinity device
IT Hemoglobins
RL: ANT (Analyte); ANST (Analytical study)
(determination of, by zone anal. device)
IT Ion exchangers
(in **glycated** and nonglycated Hb determination by zone anal. device)
IT Polysaccharides, compounds
RL: ANST (Analytical study)
(conjugates, with boronic acid, in **glycated** Hb determination by zone anal. device)
IT Hemoglobins
RL: ANT (Analyte); ANST (Analytical study)
(glyco-, determination of, by zone anal. device)
IT 9012-36-6D, Agarose, boronic acid conjugates 13780-71-7D, Boronic acid, conjugates
RL: ANST (Analytical study)
(in **glycated** Hb determination by zone anal. device)

L4 ANSWER 53 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1989:494698 CAPLUS
DN 111:94698
ED Entered STN: 16 Sep 1989
TI Sulfation of the tumor cell surface sialomucin of the 13762 rat mammary adenocarcinoma
AU Hull, Steven R.; Carraway, Kermit L.
CS Sch. Med., Univ. Miami, Miami, FL, 33101, USA
SO Journal of Cellular Biochemistry (1989), 40(1), 67-81
CODEN: JCEBD5; ISSN: 0730-2312
DT Journal
LA English
CC 14-1 (Mammalian Pathological Biochemistry)
AB ASGP-1, the major cell surface sialomucin of the 13762 ascites rat mammary adenocarcinoma, is at least 0.5% of the total ascites cell protein and has sulfate on 20% of its O-linked oligosaccharide chains. This system was used to investigate the O-**glycosylation** pathway in these cells and to determine the temporal relationship between sulfation and sialylation.

The two major sulfated oligosaccharides (S-1 and S-2) were isolated as their oligosaccharitols by alkaline **borohydride** elimination, anion **exchange** HPLC, and **ion**-suppression HPLC. From structural analyses S-1 is proposed to be a branched, sulfated trisaccharide -O4S-GlcNAcβ1,6-(Galβ1,3)-GalNAc and S-2 its sialylated derivative -O4S-GlcNAcβ1,6-(NeuAcα2,3-Galβ1,3)-GalNAc. Pulse labeling with sulfate indicated that sulfation occurred primarily on a form of ASGP-1 intermediate in size between immature and mature sialomucin. Pulse-chase analyses showed that the intermediate could be chased into mature ASGP-1. The concomitant conversion of S-1 into S-2 had a half-time of less than 5 min. Monensin treatment of the tumor cells led to a 95% inhibition of sulfation with the accumulation of unsulfated trisaccharide GlcNAcβ1,6-(Galβ1,3)-GalNAc and sialylated derivative GlcNAcβ1,6-(NeuAcα2,3-Galβ1,3)-GalNAc. These data suggest that sulfation of ASGP-1 is an intermediate synthetic step, which competes with β-1,4-galactosylation for the trisaccharide intermediate and thus occurs in the same compartment as β-1,4-galactosylation. Moreover, sulfation precedes sialylation, but the two are rapidly successive kinetic events in the oligosaccharide assembly of ASGP-1.

ST sulfation sialomucin ASGP 1 tumor cell

IT Sulfation
(of sialomucin ASGP-1 oligosaccharide of 13762 rat mammary adenocarcinoma cells, sialylation in relation to)

IT Neoplasm, metabolism
(sulfation of sialomucin ASGP-1 of 13762 cell line of, sialylation in relation to)

IT Animal cell line
(13762, sialomucin ASGP-1 of, sulfation of oligosaccharides of, sialylation in relation to)

IT Sialoglycoproteins
RL: BIOL (Biological study)
(ASGP-1 (ascites sialoglycoprotein 1), sulfation of oligosaccharides of, of 13762 rat mammary adenocarcinoma cells, sialylation in relation to)

IT **Glycosidation**
(sialylation, of sialomucin ASGP-1 of 13762 rat mammary adenocarcinoma cells, sulfation in relation to)

IT 122137-13-7 122210-88-2
RL: BIOL (Biological study)
(of sialomucin ASGP-1 of 13762 rat mammary adenocarcinoma cells, sulfation kinetics of)

L4 ANSWER 54 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1989:213218 CAPLUS
DN 110:213218
ED Entered STN: 10 Jun 1989
TI Preparation of cellodextrins and isolation of oligomeric side components and their characterization
AU Schmid, Georg; Biselli, Manfred; Wandrey, Christian
CS Inst. Biotechnol., Nucl. Res. Cent. Juelich, Juelich, D-5170, Fed. Rep. Ger.
SO Analytical Biochemistry (1988), 175(2), 573-83
CODEN: ANBCA2; ISSN: 0003-2697
DT Journal
LA English
CC 33-4 (Carbohydrates)
AB Cellodextrin (β-1,4-glucose oligomer) mixts. are prepared by precipitation of oligomers with 1-propanol and ethanol after partial hydrolysis of cellulose with hydrochloric acid or by acetolysis of cellulose. Cellooligomers (d.p. 3-8) were isolated by high-resolution size-exclusion chromatog. on Bio-Gel P 4 using water as eluent. Recycle operation of the columns allows the separation of oligomers up to a d.p. of 12. However,

ion-exchange chromatog. of their **borate** complexes demonstrates the heterogeneity of cellodextrins, homogeneous according to size-exclusion chromatog. At least 4 secondary oligomeric components are observed in the different samples. By preparative affinity chromatog. on phenyl-**boronate**-agarose, 2 of these components could be purified and characterized. In one series of oligosaccharides, the glucose unit at the reducing end of the β-1,4-glucose oligomers is derivatized at fructose. This enolization reaction occurs during size-exclusion chromatog. The precipitation step with alkanols during size-exclusion chromatog. The precipitation step with alkanols during preparation of oligomer mixts. generates oligomeric **glycosides**. Also, the formation of amines from the resp. β-1,4-glucose oligomers is observed with the ammonium carbonate eluent used in affinity chromatog. Anal. methods combined to assess for the homogeneity of cellodextrins include enzyme- and acid-catalyzed (partial) hydrolysis of the different oligomers and subsequent anal. of degradation products by sugar **borate** chromatog., 13C and 1H NMR spectroscopy, and fast-atom-bombardment mass spectroscopy.

ST cellodextrin; cellulose hydrolysis acetolysis; glucose oligomer; oligosaccharide; size exclusion chromatog cellodextrin; affinity chromatog cellodextrin

IT Acetolysis
Hydrolysis
(of cellulose, cellodextrins from)

IT 9004-34-6, Cellulose, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(acid hydrolysis and acetylation of, cellodextrins from)

IT 120434-21-1P 120434-22-2P 120434-23-3P
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in hydrolysis of cellulose)

IT 50-99-7P, Glucose, preparation 528-50-7P 2240-27-9P 2478-35-5P 33404-34-1P, Cellotriose 38819-01-1P 52598-06-8P 52646-27-2P 120434-20-0P 120521-82-6P 120521-83-7P 120521-84-8P 120573-93-5P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, by hydrolysis of cellulose)

IT 9061-30-7P, Cellodextrin
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, by hydrolysis or acetolysis of cellulose)

L4 ANSWER 55 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1989:91489 CAPLUS
DN 110:91489
ED Entered STN: 17 Mar 1989
TI Liquid-chromatographic determination of acetylated hemoglobin
AU Turpeinen, Ursula; Stenman, Ulf Hakan; Roine, Risto
CS Lab. Dep. I, Helsinki Univ. Cent. Hosp., Helsinki, 00290, Finland
SO Clinical Chemistry (Washington, DC, United States) (1989), 35(1), 33-6
CODEN: CLCHAU; ISSN: 0009-9147
DT Journal
LA English
CC 9-3 (Biochemical Methods)
Section cross-reference(s): 4, 13

AB In this liquid-chromatog. assay for acetylated Hb in human blood, **glycated** Hbs in hemolyzates are first removed by affinity chromatog. on **boronate**-agarose columns. Acetylated Hb in the nonretained fraction is determined by **cation-exchange** chromatog. The absorbance of the effluent is monitored at 415 nm. The mean within-assay relative standard deviation was 8.5%, the between-assay relative standard deviation 17%. The mean proportion of acetylated Hb in pregnant, nondiabetic women was 1.9%, and in alcoholics it was 2.7%. Rapid and reproducible, this method is suitable for use in routine determination

of acetylated Hb.
ST alcoholism acetylated Hb; pregnancy acetylated Hb; acetylated Hb detn liq chromatog
IT Buffer substances and systems
(acetylated Hbs determination by liquid chromatog. response to)
IT Pregnancy
(acetylated Hbs in humans in)
IT Chromatography, column and liquid
(affinity, **glycated** Hbs removal by, for acetylated Hbs determination)
IT Chromatography, column and liquid
(cation-exchange, of acetylated Hbs)
IT Hemoglobins
RL: REM (Removal or disposal); PROC (Process)
(glyco-, removal of, by affinity chromatog. for acetylated Hbs determination)
IT Hemoglobins
RL: ANT (Analyte); ANST (Analytical study)
(N-Ac, determination of, by liquid chromatog.)
IT 64-17-5, Ethanol, uses and miscellaneous
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(acetylated Hbs in humans response to)

L4 ANSWER 56 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1988:608875 CAPLUS
DN 109:208875
ED Entered STN: 10 Dec 1988
TI Biochemical analysis of proteoglycans synthesized by human aortic smooth muscle cells in culture
AU Guo, Ming; Chang, Yingshan; Chen, Kuofen
CS Cardiovasc. Inst., Chim. Acad. Med. Sci., Beijing, Peop. Rep. China
SO Shengwu Huaxue Zazhi (1988), 4(4), 307-14
CODEN: SHZAE4; ISSN: 1000-8543
DT Journal
LA Chinese
CC 13-6 (Mammalian Biochemistry)
Section cross-reference(s): 6, 14
AB Smooth muscle cells (SMCs) derived from human aorta were cultured for 15 passages in vitro. To label proteoglycans (PG), SMCs of the 4th (T4) and 10th (T10) passages were cultured in medium with [35S]sulfate. The 35S-labeled macromols. in the culture medium and cell layer were isolated by DEAE-Sephacel **ion-exchange** chromatog. and Sepharose CL-4B gel filtration. The **glycosaminoglycans** (GAGs) released by alkaline **borohydride** were analyzed by Sepharose 6B and characterized by chondroitinase ABC or AC-II digestion and nitrous acid degradation Cultured SMCs derived from human aorta appear to synthesize 3 PG monomers, i.e. proteodermatan-chondroitin sulfate (DS-CS-PG), proteochondroitin sulfate (CS-PG), and proteoheparan sulfate (HS-PG); DS-CS-PG accounts for about 68% and 80% of total PG3 in SMCs-T4 and -T10, resp. The order of charge d. of PGs from low to high is HS-PG, CS-PG, and DS-CS-PG. CS-PG in both medium and cell layer is of similar hydrodynamic size (eluted near the void volume of Sepharose CL-4B column), whereas DS-CS-PG in the medium is larger than that in cell layer, with Kd of 0.30 and 0.53, resp., on Sepharose CL-4B column. DS-CS-PG of the cell layer was eluted at the same position on Sepharose 6B before and after alkaline **borohydride** treatment, so it is either free GAG or GAG linked to a small peptide. DS-CS-PG may be a hybrid of DS and CS because part of which resists the digestion of chondroitinase AC-II. In addition, there is a higher percentage of HS-PG in the cell layer than that in the medium. The Kd-values of GAGs from CS-, HS-, and DS-CS-PG are 0.33, 0.37, and 0.42, resp., on Sepharose 6B. The SMCs-T10 show a higher 35S incorporation into DS-CS-PG than those of T4 in medium and cell layer. Contrarily, the ratio of 35S incorporation into CS-PG and HS-PG decreases in both medium and cell layer

of the SMCs-T10. The lipid accumulation in the SMCs of T10 and changes in their synthesis of of PGs as compared with the SMCs of T4 imply that senescence of SMCs may play an important role in the pathogenesis of atherosclerosis.

ST artery proteoglycan formation cell aging

IT Cell aging
(proteoglycan formation by human aortic smooth muscle cell in culture in relation to)

IT Artery, metabolism
(aorta, proteoglycan formation by, in culture, cell aging in relation to)

IT Mucopolysaccharides, biological studies
RL: FORM (Formation, nonpreparative)
(proteochondroitin sulfates, formation of, by human aortic smooth muscle cells in culture, cell aging in relation to)

IT Mucopolysaccharides, biological studies
RL: FORM (Formation, nonpreparative)
(proteoglycans, chondroitin sulfate-dermatan sulfate-containing, formation of, by human aortic smooth muscle cells in culture, cell aging in relation to)

IT Mucopolysaccharides, biological studies
RL: FORM (Formation, nonpreparative)
(proteoheparitin sulfates, formation of, by human aortic smooth muscle cells in culture, cell aging in relation to)

L4 ANSWER 57 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1988:526796 CAPLUS

DN 109:126796

ED Entered STN: 14 Oct 1988

TI Nonenzymic **glycation** of basement membranes from human glomeruli and bovine sources. Effect of diabetes and age

AU Garlick, Robert L.; Bunn, H. Franklin; Spiro, Robert G.

CS Lab. Howard Hughes Med. Inst., Harvard Med. Sch., Boston, MA, 02215, USA

SO Diabetes (1988), 37(8), 1144-50
CODEN: DIAEAZ; ISSN: 0012-1797

DT Journal

LA English

CC 14-8 (Mammalian Pathological Biochemistry)
Section cross-reference(s): 13

AB The nonenzymic **glycation** of glomerular basement membranes (GBMs) from diabetic and nondiabetic human subjects was determined after **boronic** acid affinity and high-performance **cation-exchange** chromatog. of their NaB[3H]4-reduced ketoamine adducts. The glucitol-lysine (Glc-Lys) and the glucitol-hydroxylysine (Glc-Hyl) content of diabetic GBM was .apprx.2-fold higher than that of nondiabetic samples. The content of these **glycated** amino acids did not correlate with age over the range examined (20-91 yr) or with the length of disease in diabetic subjects (2-16 yr). However, analyses of Glc-Lys and Glc-Hyl in calf and adult bovine GBM and lens capsules indicated that the levels of these **glycated** amino acids were several times greater in basement membranes from older animals. Guanidine-insol. collagen of bovine GBM was more extensively **glycated** (.apprx.4-fold) than primarily noncollagenous proteins that are extracted by this reagent. In all of the basement membranes examined, the percentage of **glycation** of lysine was greater than of hydroxylysine. Characterization of the components released by alkaline hydrolysis indicated that O-**glycosylated** hydroxylysine residues are nonenzymically N-**glycated** to the same extent as those without an enzymically attached carbohydrate unit. Thus, more than a hundred times as many hydroxylysine residues are enzymically **glycosylated** in human and bovine GMB as those containing the nonenzymically formed ketoamine adduct. The results are discussed in terms of pathogenesis of diabetic glomerulopathy and microangiopathy.

ST amino acid **glycation** basement membrane diabetes; age amino acid **glycation** kidney
IT Basement membrane
(nonenzyme **glycation** of amino acids in, age and diabetes effect on, in humans and laboratory animals)
IT Senescence
(nonenzymic **glycation** of amino acids in, in humans and laboratory animals)
IT Diabetes mellitus
(nonenzymic **glycation** of basement membrane proteins response to, in human)
IT Amino acids, biological studies
Collagens, biological studies
RL: BIOL (Biological study)
(nonenzymic **glycation** of, by kidney and lens, age and diabetes effect on, in humans and laboratory animals)
IT Kidney, disease or disorder
(diabetic glomerulopathy, pathogenesis of, nonenzymic **glycation** of amino acids in humans and laboratory animals in relation to)
IT Kidney, metabolism
(glomerulus, nonenzyme **glycation** of amino acids in, age and diabetes effect on, in humans and laboratory animals)
IT Eye, metabolism
(lens, nonenzymic **glycation** of amino acids in, age effect on)
IT Blood vessel, disease or disorder
(microangiopathy, pathogenesis of, nonenzymic **glycation** of amino acids in humans and laboratory animals in relation to)
IT 64609-73-0 81703-16-4
RL: FORM (Formation, nonpreparative)
(formation of, by kidney and lens, age and diabetes effect on, in humans and laboratory animals)
IT 56-87-1, Lysine, biological studies 1190-94-9, Hydroxylysine
RL: BIOL (Biological study)
(nonenzymic **glycation** of, by kidney and lens, age and diabetes effect on, in humans and laboratory animals)

L4 ANSWER 58 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1988:450477 CAPLUS
DN 109:50477
ED Entered STN: 19 Aug 1988
TI Isolation, purification, and partial characterization of neutral oligosaccharides from bovine gallbladder mucin **glycoprotein**
AU Nasir-ud-Din; Ajaz, M. Saleh; Hussain, S. Altaf; Smith, Bernard F.; Lamont, J. Thomas
CS Dep. Chem., Univ. Baluchistan, Quetta, Pak.
SO Journal of the Chemical Society of Pakistan (1988), 10(1), 11-18
CODEN: JCSPDF; ISSN: 0253-5106
DT Journal
LA English
CC 6-4 (General Biochemistry)
AB A **glycoprotein** was isolated from bovine gall bladder secretions. The **glycoprotein** was purified on Bio-Gel P-200 and by subsequent mild treatment with Pronase. The Pronase-treated **glycoprotein** was further purified by gel chromatog. on Sepharose 4B and by **ion -exchange** chromatog. The purified **glycoprotein** was subjected to alkaline degradation-**borohydride** reduction The liberated oligosaccharide alditols were purified by gel filtration, and separated into neutral and acidic oligosaccharides. Four purified neutral oligosaccharides were characterized by chemical and enzymic studies and were assigned structures.
ST **glycoprotein** oligosaccharide gall bladder mucin
IT Gallbladder
(**glycoprotein** of mucin of, neutral oligosaccharides of,

isolation and structural characterization of)

IT Mucins
RL: BIOL (Biological study)
(neutral oligosaccharides of, of gallbladder, structures of)

IT Oligosaccharides
RL: BIOL (Biological study)
(of glycoproteins, of gall bladder mucin, isolation and structural characterization of)

IT Molecular structure, natural product
(of neutral oligosaccharides of **glycoprotein** of gallbladder mucin)

IT 115465-74-2P
RL: PREP (Preparation)
(of glycoproteins, of gall bladder mucin, isolation and structural characterization of)

IT 3554-90-3P 115439-98-0P
RL: PREP (Preparation)
(of glycoproteins, of gallbladder mucin, isolation and structural characterization of)

L4 ANSWER 59 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1988:182457 CAPLUS
DN 108:182457
ED Entered STN: 28 May 1988
TI Heparan sulfate proteoglycan from the extracellular matrix of human lung fibroblasts. Isolation, purification, and core protein characterization
AU Heremans, Annie; Cassiman, Jean Jacques; Van den Berghe, Herman; David, Guido
CS Cent. Hum. Genet., Univ. Leuven, Louvain, B-3000, Belg.
SO Journal of Biological Chemistry (1988), 263(10), 4731-9
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English
CC 6-3 (General Biochemistry)
Section cross-reference(s): 13
AB Confluent cultured human lung fibroblasts were labeled with 35SO42-. After 48 h of labeling, the pericellular matrix was prepared by Triton X-100 and deoxycholate extraction of the monolayers. Heparan sulfate proteoglycan (HSPG) accounted for .apprx.80% of the total matrix [35S]proteoglycans. After solubilization in 6M guanidinium HCl and CsCl d. gradient centrifugation, the majority (78%) of these [35S]HSPG equilibrated at an average buoyant d. of 1.35 g/mL. This major HSPG fraction was purified by **ion-exchange** chromatog. on Mono Q and by gel filtration on Sepharose CL-4B, and further characterized by gel electrophoresis and immunoblotting. Intact [35S]HSPG eluted with Kav 0.1 from Sepharose CL-4B, whereas the protein-free [35S]heparan sulfate chains, obtained by alkaline **borohydride** treatment of the proteoglycan fractions, eluted with Kav 0.45 (mol. weight .apprx.72,000). When analyzed by SDS-PAGE and autoradiog., core (protein) prepns., obtained by heparitinase digestion of 125I-labeled HSPG fractions, yielded 1 major labeled band with apparent mol. mass of .apprx.300 kilodaltons. Reduction with β-mercaptoethanol slightly increased the apparent mol. weight of the labeled band, suggesting a single polypeptide structure and the presence of intrachain disulfide bonds. Immunoadsorption expts. and immunostaining of electrophoretically separated heparitinase-digested core proteins with monoclonal antibodies raised against matrix and cell surface-associated HSPG suggested that the major matrix-associated HSPG of cultured human lung fibroblasts is distinct from the HSPG that are anchored in the membranes of these cells. Binding studies suggested that this matrix HSPG interacts with several matrix components, both through its **glycosaminoglycan** chains and through its heparitinase-resistant core. Core (protein) interactions seem to be responsible for the association of the proteoglycan with the extracellular matrix.

ST heparan sulfate proteoglycan lung extracellular matrix
IT Lung, composition
(heparan sulfate proteoglycan of extracellular matrix of, of human, purification and core protein characterization of)
IT Fibroblast
(heparan sulfate proteoglycan of extracellular matrix of, of lung of human, purification and core protein characterization of)
IT Extracellular matrix
(heparan sulfate proteoglycan of, of human lung fibroblast, purification and core protein characterization of)
IT Molecular association
(of heparan sulfate proteoglycan of extracellular matrix of human lung with other matrix components, core protein role in)
IT Mucopolysaccharides, biological studies
RL: BIOL (Biological study)
(proteoglycans, heparitin sulfate-containing, of extracellular matrix of human lung fibroblast, purification and core protein characterization of)

L4 ANSWER 60 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1987:473065 CAPLUS
DN 107:73065
ED Entered STN: 05 Sep 1987
TI Structural studies on sialylated and sulfated O-**glycosidic** mannose-linked oligosaccharides in the chondroitin sulfate proteoglycan of brain
AU Krusius, Tom; Reinhold, Vernon N.; Margolis, Renee K.; Margolis, Richard U.
CS Dep. Med. Chem., Univ. Helsinki, Helsinki, SF 00170, Finland
SO Biochemical Journal (1987), 245(1), 229-34
CODEN: BIJOAK; ISSN: 0306-3275
DT Journal
LA English
CC 6-4 (General Biochemistry)
AB The structures of neutral and sialylated O-**glycosidic** mannose-linked tetrasaccharides and keratin sulfate polysaccharide chains in the chondroitin sulfate proteoglycan of brain were previously described. Here, information is given on a series of related sialylated and/or sulfated tri- to penta-saccharides released by alkaline-**borohydride** treatment of the proteoglycan glycopeptides. The oligosaccharides were fractionated by **ion-exchange** chromatog. and gel filtration, and their structural properties were studied by methylation anal. and fast-atom-bombardment mass spectrometry. Five fractions containing [35S]sulfate-labeled oligosaccharides were obtained by **ion-exchange** chromatog., each of which was eluted from Sephadex G-50 as 2 well-separated peaks. The apparent mol. wts. of both the large- and small-mol.-size fractions increased with increasing acidity (and sulfate labeling) of the oligosaccharides. The larger-mol.-size fractions contained short mannose-linked keratan sulfate chains of mol. weight 3000-4500, together with some asparagine-linked oligosaccharides. The smaller tri- to penta-saccharides, of mol. weight 800-1400, appeared to have a common GlcNAc(β1-3)Manol core, and to contain 1-2 residues of sialic acid and/or sulfate.
ST chondroitin sulfate proteoglycan oligosaccharide structure brain; mannose oligosaccharide chondroitin sulfate proteoglycan structure; sialylated mannose oligosaccharide chondroitin sulfate proteoglycan; sulfated mannose oligosaccharide chondroitin sulfate proteoglycan
IT Brain, composition
(chondroitin sulfate proteoglycans of, structure of sialylated and sulfated O-**glycosidic** mannose-linked oligosaccharides of)
IT Carbohydrates and Sugars, biological studies
RL: BIOL (Biological study)
(of oligosaccharides of chondroitin sulfate proteoglycans, of brain)
IT Oligosaccharides

RL: BIOL (Biological study)
(mannose-containing, sulfated, O-linked, of chondroitin sulfate proteoglycans of brain, structure of)

IT Mucopolysaccharides, properties
RL: PRP (Properties)
(proteoglycans, chondroitin sulfate-containing, sialylated and sulfated O-**glycosidic** mannose-linked oligosaccharides of, of brain, structure of)

IT Oligosaccharides
RL: BIOL (Biological study)
(sialo-, mannose-containing, O-linked, of chondroitin sulfate proteoglycans of brain, structure of)

IT 9056-36-4D, Keratan sulfate, mannose-linked
RL: BIOL (Biological study)
(of chondroitin sulfate proteoglycans, of brain, structure of)

IT 9007-28-7D, proteoglycans containing
RL: BIOL (Biological study)
(structure of sialylated and sulfated O-**glycosidic** mannose-linked oligosaccharides of, of brain)

L4 ANSWER 61 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1987:403225 CAPLUS
DN 107:3225
ED Entered STN: 11 Jul 1987
TI Neoglycolipid micro-immunoassays applied to the oligosaccharides of human milk galactosyltransferase detect blood-group related antigens on both O- and N-linked chains
AU Tang, Ping W.; Feizi, Ten
CS Appl. Immunochem. Res. Group, Clin. Res. Cent., Harrow/Middlesex, HA1 3UJ, UK
SO Carbohydrate Research (1987), 161(1), 133-43
CODEN: CRBRAT; ISSN: 0008-6215
DT Journal
LA English
CC 7-5 (Enzymes)
Section cross-reference(s): 15
AB Reduced O-linked chains and reducing N-linked chains were obtained from human milk galactosyltransferase by degradation with alkaline **borohydride** and hydrazinolysis and then purified by **ion-exchange** chromatog. The reactivities of the conjugates of the oligosaccharides with L-α-phosphatidyl ethanolamine dipalmitoyl (PPEADP) towards monoclonal anti-Lea and anti-SSEA-1 were than determined, either by antibody-binding assays after absorbing the neoglycolipids onto plastic wells, or by inhibition assays after incorporating the neoglycolipids into liposomes and testing them as inhibitors of antibody binding. The oligosaccharides were also immunostained with monoclonal anti-Lea after HPLC and coupling to PPEADP. Antigenic activities were detected in the O-linked chains by all 3 assay systems, whereas, for the less abundant N-linked chains, reactivities were detected by the inhibition assays only. The results provide evidence for the expression of Lea and SSEA-1 antigen activities on both the O- and N-linked chains of this enzyme **glycoprotein.**
ST milk galactosyltransferase oligosaccharide Lea SSEA antigen; blood group antigen milk galactosyltransferase immunoassay
IT Antigens
RL: PROC (Process)
(of galactosyltransferase oligosaccharides, of human milk, immunol. detection of)

IT Oligosaccharides
RL: BIOL (Biological study)
(N- and O-linked, of galactosyltransferase of human milk, Lea and SSEA-1 antigens immunol. detection on)

IT Antigens

RL: PROC (Process)
(SSEA-1, of galactosyltransferase oligosaccharides, of human milk, immunol. detection of)

IT Milk
(human, galactosyltransferase of, Lea and SSEA-1 antigens detection on oligosaccharides of)

IT 9031-68-9, Galactosyltransferase
RL: BIOL (Biological study)
(Lea and SSEA-1 antigens immunol. detection on N- and O-linked oligosaccharides of, of human milk)

L4 ANSWER 62 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1986:578522 CAPLUS
DN 105:178522
ED Entered STN: 15 Nov 1986
TI Application of **borate ion-exchange** mode high-performance liquid **chromatography** to separation of **glycosides**: saponins of ginseng, Sapindus mukurossi Gaertin. and Anemone rivularis Buch.-Ham
AU Yamaguchi, Hiroyuki; Matsuura, Hiromichi; Kasai, Ryoji; Mizutani, Kenji; Fujino, Hiroko; Ohtani, Kazuhiro; Fuwa, Toru; Tanaka, Osamu
CS Cent. Res. Lab., Wakunaga Pharm. Co., Ltd., Hiroshima, 729-64, Japan
SO Chemical & Pharmaceutical Bulletin (1986), 34(7), 2859-67
CODEN: CPBTAL; ISSN: 0009-2363
DT Journal
LA English
CC 64-2 (Pharmaceutical Analysis)
Section cross-reference(s): 11
AB HPLC of **borate** complexes on a basic **ion-exchange** column was investigated for the separation of saponins of ginseng, Sapindus mukurossi and Anemone rivularis, as well as other synthetic **glycosides** including steviol **glycosides**. HPLC in this mode is effective for anal. and preparative separation of a variety of **glycosides**, especially isomeric **glycosides**, containing xylopyranosyl, arabinofuranosyl or arabinopyranosyl units.
ST **glycoside** sepn HPLC; saponin sepn HPLC; liq chromatog **glycoside**; ginseng saponin HPLC; Sapindus saponin HPLC; Anemone saponin HPLC
IT Plant analysis
(**glycoside** separation in, by HPLC with **borate ion-exchange**)
IT Anemone rivularis
Ginseng
Sapindus mukorossi
(separation of **glycosides** in, by HPLC with **borate ion-exchange**)
IT **Glycosides**
Saponins
RL: ANT (Analyte); ANST (Analytical study)
(separation of, by HPLC, **borate ion-exchange** in)
IT **Glycosides**
RL: ANT (Analyte); ANST (Analytical study)
(ginsenosides, separation of, by HPLC, **borate ion-exchange** in)
IT Chromatography, column and liquid
(high-performance, ion-exchange, for separation of **glycosides** and saponins)
IT 465-99-6 508-02-1 3795-68-4 3945-28-6 89734-27-0 89734-28-1
RL: ANT (Analyte); ANST (Analytical study)
(HPLC of, **borate ion-exchange** in)
IT 10043-35-3, uses and miscellaneous
RL: USES (Uses)

(separation of saponins by HPLC in relation to)
IT 60129-60-4 64849-39-4 104806-94-2 104806-95-3 104873-42-9
RL: ANT (Analyte); ANST (Analytical study)
(separation of, by HPLC, **borate ion-exchange** in)
IT 11021-13-9 11021-14-0 22427-39-0 41753-43-9 52286-59-6
52705-93-8 68406-26-8
RL: ANST (Analytical study)
(separation of, of ginseng by HPLC, **borate ion-exchange** in)
IT 30994-75-3 75799-18-7 80666-65-5 84607-60-3 94795-70-7
96315-51-4 96315-52-5
RL: ANST (Analytical study)
(separation of, of Anemone rivularis by HPLC, **borate ion-exchange** in)

L4 ANSWER 63 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1986:511029 CAPLUS
DN 105:111029
ED Entered STN: 03 Oct 1986
TI Confirmation that catalase is a **glycoprotein**
AU Pegg, Michael; Crane, Denis; Masters, Colin
CS Sch. Sci., Griffith Univ., Brisbane, 4111, Australia
SO Biochemistry International (1986), 12(6), 831-8
CODEN: BIINDF; ISSN: 0158-5231
DT Journal
LA English
CC 7-5 (Enzymes)
AB Catalases which had been purified from the livers of mouse, rat, and guinea pig were subjected to mild IO4- oxidation followed by reduction with Na **boro**[3H]hydride in order to test for the presence of sialic acid. A radioactively labeled moiety resulted, which behaved as a derivative of N-acetylneuraminic acid during mild acid hydrolysis, neuraminidase treatment, **ion-exchange** chromatog., and paper chromatog. Thus, mammalian catalases are glycoproteins and possess variable amts. of N-acetylneuraminic acid in their carbohydrate moiety.
ST liver catalase **glycoprotein**; acetylneuraminate catalase liver
IT Liver, composition
(catalase of, **glycoprotein** nature of)
IT 131-48-6
RL: BIOL (Biological study)
(of catalase, of liver)
IT 9001-05-2
RL: BIOL (Biological study)
(sialoglycoprotein nature of, of liver)

L4 ANSWER 64 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1986:438685 CAPLUS
DN 105:38685
ED Entered STN: 09 Aug 1986
TI A comparison of the determination of glucosylated hemoglobin by isoelectric focusing and cation-exchange chromatography on minicolumns
AU Poulsen, Joergen Hjelm; Jespersen, Joergen
CS Aarhus Kommunehosp., Univ. Aarhus, Aarhus, DK-8000, Den.
SO Scandinavian Journal of Clinical and Laboratory Investigation (1986), 46(3), 259-63
CODEN: SJCLAY; ISSN: 0036-5513
DT Journal
LA English
CC 9-10 (Biochemical Methods)
Section cross-reference(s): 14
AB The labile intermediate, pre A1c, formed in the **glycosylation** of Hb A is a potential contaminant in the measurement of **glycosylated**

Hb when this is determined as the amount of HbA1c present in the sample. By isoelec. focusing on polyacrylamide gel plates this contamination could be avoided either by excision of the HbA1c leaving the neighboring pre A1c behind on the slab, or by converting the pre A1c to HbA in glucose-free medium before electrophoresis. In **cation-exchange** chromatog. on minicolumns (from Bio-Rad) the pre A1c was removed in the hemolysis process by **borate**-induced transformation to the noninterfering HbA. The chromatog. method nevertheless gave .apprx.10% higher values than isoelec. focusing. The linearity between paired results of the electrophoretic and chromatog. methods was not perfect. Both methods measured decreasing concns. of HbA1c equally well and with the same precision at both high and low levels. All HbF was simultaneously determined in the chromatog. method, while HbF did not interfere in the electrophoretic method. The HbA1c in whole blood samples was stable at 4° for up to 1 wk. CO treatment made the HbA1c in hemolyzates stable for at least 3 mo at -70° making possible long-term control by both methods.

ST cation exchange chromatog HbA1c HbF; isoelec focusing **glycosylated** Hb; diabetes glucosylated Hb detn

IT Diabetes mellitus
(control of, glucosylated Hb in, of humans)

IT Isoelectric focusing
(of glucosylated Hbs, of humans)

IT Chromatography, column and liquid
(cation-exchange, of glucosylated Hbs, of humans)

IT Hemoglobins
RL: ANT (Analyte); ANST (Analytical study)
(glyco-, determination of, by isoelec. focusing and cation-exchange chromatog.
on minicolumns, of humans)

IT 9034-63-3
RL: ANT (Analyte); ANST (Analytical study)
(determination of, by cation-exchange chromatog., of humans)

IT 62572-11-6
RL: ANT (Analyte); ANST (Analytical study)
(determination of, cation-exchange chromatog. and isoelec. focusing comparison
for, of humans)

L4 ANSWER 65 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1986:422213 CAPLUS
DN 105:22213
ED Entered STN: 26 Jul 1986
TI Biosynthesis of proteoglycans by rat embryo parietal yolk sacs in organ culture
AU Iozzo, Renato V.; Clark, Charles C.
CS Sch. Med., Univ. Pennsylvania, Philadelphia, PA, 19104, USA
SO Journal of Biological Chemistry (1986), 261(15), 6658-69
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English
CC 13-3 (Mammalian Biochemistry)
Section cross-reference(s): 6

AB Parietal yolk sacs were isolated from 14.5-day rat embryos and incubated in organ culture for 4-7 h with [35S]sulfate, [3H]glucosamine, and(or) 3H-labeled amino acids, and the newly synthesized proteoglycans were characterized. The major [35S]sulfate-labeled macromol. represented .apprx.90% of the medium and 80% of the tissue radioactivity. It also represented nearly 80% of the total [3H]glucosamine-labeled **glycosaminoglycans**. After purification by sequential **ion-exchange** chromatog. and isopycnic CsCl d. gradient ultracentrifugation, size-exclusion HPLC showed a single species with an estimated mol. weight (Mr) of 8-9 + 105. The intact proteoglycan did not

form aggregates in the presence of exogenous hyaluronic acid or cartilage aggregates. Alkaline **borohydride** treatment released **glycosaminoglycan** chains with Mr 2.0 + 104 which were susceptible to chondroitinase AC II and chondroitinase ABC digestion. Anal. by HPLC of the disaccharides generated by chondroitinase ABC digestion revealed that chondroitin 6-sulfate was the predominant isomer. The uronic acid content of the **glycosaminoglycans** was 92% glucuronic acid and 8% iduronic acid, and the hexosamine content was 96% galactosamine and 4% glucosamine. No significant amts. of N- or O-linked oligosaccharides were detected. Deglycosylation of the proteoglycan with chondroitinase ABC in the presence of protease inhibitors revealed a protein core with an estimated Mr of 1.25-1.35 + 105. Thus, the major proteoglycan synthesized by the 14.5-day rat embryo parietal yolk sac is a high-d. proteoglycan containing primarily chondroitin sulfate and only small amts. of copolymeric dermatan sulfate. Hyaluronic acid and minor amts. of heparan sulfate proteoglycan were also detected.

ST proteoglycan formation parietal yolk sac; embryo yolk sac proteoglycan formation

IT Embryo
(parietal yolk sac, proteoglycan formation and characterization in)

IT Mucopolysaccharides, biological studies
RL: BIOL (Biological study)
(proteoglycans, formation and characterization of, in embryo parietal yolk sac)

L4 ANSWER 66 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1986:48722 CAPLUS
DN 104:48722
ED Entered STN: 23 Feb 1986
TI Partial structure elucidation of the carbohydrate moiety of 1,25-dihydroxycholecalciferol **glycoside** isolated from Solanum glaucophyllum leaves
AU Vidal, M. C.; Lescano, W.; Avdolov, R.; Puche, R. C.
CS Fac. Cienc. Med., Univ. Nac. Rosairo, Santa Fe, 3100, Argent.
SO Turrialba (1985), 35(1), 65-70
CODEN: TURRAB; ISSN: 0041-4360
DT Journal
LA English
CC 11-1 (Plant Biochemistry)
Section cross-reference(s): 33
AB **Ion exchange** chromatog. of the **borate** complexes of soluble carbohydrates from S. glaucophyllum leaves allowed the isolation of 1,25-dihydroxycholecalciferol **glycoside**. The sterol was bound to a series of fructoglucosides. Investigation of their fine structure through periodic acid oxidation demonstrated that fructose was linked to a disaccharide unit [Glcp α 1-2Glc] repeating 1, 2 or 4 times. The aglycon was bound to the reducing end of the saccharide.

ST cholecalciferol **glycoside** structure Solanum

IT Solanum glaucophyllum
(dihydroxycholecalciferol **glycoside** from, carbohydrate moiety of, structure elucidation of)

IT **Glycosides**
RL: BIOL (Biological study)
(fructosides, from Solanum glaucophyllum leaf, partial structure of)

IT 32222-06-3D, fructoglycoside
RL: BIOL (Biological study)
(from Solanum glaucophyllum leaf, carbohydrate moiety of, structure elucidation of)

L4 ANSWER 67 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1985:500643 CAPLUS
DN 103:100643
ED Entered STN: 04 Oct 1985

TI Oligosaccharide structures of human colonic mucin
AU Podolsky, Daniel K.
CS Gastrointest. Unit, Massachusetts Gen. Hosp., Boston, MA, 02114, USA
SO Journal of Biological Chemistry (1985), 260(14), 8262-71
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English
CC 6-4 (General Biochemistry)
AB Purified human colonic mucin was separated into 6 distinct components by DEAE-cellulose chromatog., and the structures of oligosaccharide side chains from the 3 most abundant species were determined Oligosaccharide side chains were isolated from colonic mucin species III, IV, and V after alkaline **borohydride** reductive cleavage in the presence of NaB3H3. After initial separation of acidic and neutral oligosaccharides by **ion-exchange** chromatog., individual oligosaccharides were isolated by sequential chromatog. on Bio-Gel P-4 and P-2 resins followed by preparative normal phase HPLC. Compns. and structures of individual oligosaccharides were determined by of gas chromatog., methylation anal., and sequential **glycosidase** digestion. Collectively, 21 discrete oligosaccharide structures were identified in the major human colonic mucin species including 10 acidic oligosaccharides and 11 neutral structures comtg. 2-12 sugar residues. Although detailed structures were defined for each oligosaccharide, the majority of the structures identified were variations of a relatively small number of basic structures, and several generalizations pertained. (1) Many oligosaccharides represented variations of a biantennary structure in which branch chains arise in N-acetylglucosaminyl residues linked to C3 and C6 of a galactosyl residue, linked in turn to a GlcNAcβ(1-3)GalNAc core. (2) Nonbranched oligosaccharides appeared to be linear chain derivs. of the same core structure. (3) All acidic oligosaccharides could be derived from neutral structures present in the mucin species. (4) Sialic acid substitution was limited to few sites and always included substitution in α2-6 linkage to the reducing terminal N-acetylgalactosamine. (5) Several structures contained both sialic acid and fucose residues. Individually, mucin species III, IV, and V contained unique mixts. of 13, 14, and 10 oligosaccharide structures, resp. Human colonic mucin thus contains a wide range of oligosaccharides comprised of variations of several common core oligosaccharide structures. The major chromatog. defined constituents of normal colonic mucin appear to possess characteristic structures. These findings support the concept that colonic mucin contains structurally and functionally distinct subpopulations.
ST mucin oligosaccharide structure colon
IT Molecular structure, natural product
(of oligosaccharides, of mucin of human colon)
IT Mucins
RL: BIOL (Biological study)
(oligosaccharides of, of human colon, structure of)
IT Oligosaccharides
RL: PRP (Properties)
(structure of, of mucin of human colon)
IT Intestine, composition
(colon, mucosa, mucin of, of human, structures of oligosaccharides of)
IT 67529-82-2 70268-06-3 75446-07-0 75472-69-4 75520-90-0
97870-82-1 97870-83-2 97870-84-3 97870-85-4 97870-86-5
97870-87-6 97870-88-7 97870-89-8 97870-90-1 97870-91-2
97870-92-3 97870-93-4 97870-94-5 97884-23-6 97884-24-7
97897-15-9
RL: PRP (Properties)
(structure of, of mucin of human colon)

L4 ANSWER 68 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1985:162543 CAPLUS

DN 102:162543
ED Entered STN: 18 May 1985
TI Biochemical characterization of mucous glycoproteins synthesized and secreted by hamster tracheal epithelial cells in primary culture
AU Kim, Kwang C.; Rearick, James I.; Nettesheim, Paul; Jetten, Anton M.
CS Lab. Pulm. Pathobiol., Natl. Inst. Environ. Health Sci., Research Triangle Park, NC, 27709, USA
SO Journal of Biological Chemistry (1985), 260(7), 4021-7
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English
CC 6-4 (General Biochemistry)
Section cross-reference(s): 13
AB Hamster tracheal epithelial cells growing on type I collagen gel synthesize and secrete high-mol.-weight glycoconjugates which elute in the void volume on Sepharose CL-4B column chromatog. The presence of any proteoglycans in this void volume material was ruled out based on both enzymic anal. and behavior on DEAE-**ion exchange** chromatog. Based on the incorporation of radioactive precursors, followed by strong acid hydrolysis or neuraminidase digestion, the material was shown to contain sialic acid, fucose, galactose, N-acetylglucosamine, N-acetylgalactosamine, and sulfate. Complete susceptibility to papain digestion and reductive β-elimination suggests that the material consists of O-linked glycoproteins. The identification of N-acetylgalactosaminitol in the β-eliminated oligosaccharides confirms this notion. The mol. weight of the oligosaccharides following β-elimination is 4000-15,000. Thus, the high-mol.-weight glyconjugates produced by hamster tracheal epithelial cells in primary culture are mucous glycoproteins on the basis of size, sensitivity to alkaline **borohydride** treatment, and monosaccharide composition Further characterization of these mucous glycoproteins showed both size and charge microheterogeneity.
ST trachea epithelium mucous **glycoprotein** formation characterization
IT Mucus
(glycoproteins of, of trachea, purification and characterization of)
IT Carbohydrates and Sugars, biological studies
RL: BIOL (Biological study)
(of mucus glycoproteins, of trachea epithelium)
IT Sialoglycoproteins
RL: BIOL (Biological study)
(of trachea mucus, purification and characterization of)
IT Glycoproteins
RL: BIOL (Biological study)
(of tracheal epithelium mucus, formation and characterization and secretion of)
IT Oligosaccharides
RL: BIOL (Biological study)
(O-linked, of mucus glycoproteins, of trachea epithelium)
IT Animal cell
(HTE, mucus glycoproteins of, formation and secretion and characterization of)
IT Trachea
(epithelium, glycoproteins of mucus of, purification and characterization of)
IT Mucins
RL: BIOL (Biological study)
(sialo-, of trachea epithelium, purification and characterization of)

L4 ANSWER 69 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1985:162541 CAPLUS
DN 102:162541
ED Entered STN: 18 May 1985

TI Structural studies of O-**glycosidic** oligosaccharide units of dog erythrocyte glycophorin
AU Yamashita, Teiko; Murayama, Junichiro; Utsumi, Hideo; Hamada, Akira
CS Sch. Pharm. Sci., Showa Univ., Tokyo, 142, Japan
SO Biochimica et Biophysica Acta (1985), 839(1), 26-31
CODEN: BBACAQ; ISSN: 0006-3002
DT Journal
LA English
CC 6-4 (General Biochemistry)
AB Dog glycophorin, the major sialoglycoprotein of dog erythrocyte membranes, contains either N-acetyl- or N-glycolylneuraminic acid, depending on the strain of dog. Glycolipids contained the same sialic acid as found in glycophorin when both materials are prepared from erythrocyte membranes of individual dogs. The O-**glycosidic** oligosaccharides were released from glycophorin prepared from individual dogs by alkaline **borohydride** treatment, and were purified by gel filtration and **ion-exchange** chromatog. The structures of the reduced oligosaccharides were determined by methylation anal. and gas-liquid chromatog.-mass spectrometry. The O-**glycosidic** oligosaccharides identified were 1 tetrasaccharide [NeuAc(2 → 3)Gal(1 → 3)[Neu5Ac(2 → 6)]GalNAcol] and 2 trisaccharides [Neu5Ac(2 → 3)Gal(1 → 3)GalNAcol and Gal(1 → 3)[Neu5Ac(2 → 6)]GalNAcol], where GalNAcol isN-acetylgalactosaminitol.
ST erythrocyte glycophorin oligosaccharide structure
IT Erythrocyte
(glycophorin of, structure of oligosaccharides of)
IT Molecular structure, natural product
(of glycophorin O-linked oligosaccharides, of erythrocyte)
IT Oligosaccharides
RL: BIOL (Biological study)
(of glycophorin of erythrocyte, structure of)
IT Glycophorins
RL: BIOL (Biological study)
(oligosaccharides of, of erythrocyte, structure of)
IT 68314-59-0 68366-20-1 68366-21-2
RL: BIOL (Biological study)
(of glycophorin, of erythrocyte)

L4 ANSWER 70 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1985:109165 CAPLUS
DN 102:109165
ED Entered STN: 06 Apr 1985
TI The effects of abnormal hemoglobins on a new microcolumn method to determine hemoglobin A1c
AU Davis, Jim L.; Bryan, Barbara; Simpkins, Henry
CS Dep. Pathol., Univ. California, Irvine, CA, 92717, USA
SO Annals of Clinical and Laboratory Science (1985), 15(1), 71-5
CODEN: ACLSCP; ISSN: 0091-7370
DT Journal
LA English
CC 9-3 (Biochemical Methods)
AB A new **cation-exchange** microcolumn employing a **borate** buffer reportedly separates Hb A1c from other labile **glycosylated** intermediates in a one-step procedure. The effect of commonly occurring abnormal Hbs on the Hb A1c levels as determined by this technique has been studied and compared to the values obtained by isoelec. focusing. If a patient has Hb levels in the normal range, or if HbS, HbE, or an elevated HbA2 are present, then Hb A1c levels as estimated by this new column are unaffected or decreased. However, if HbF is elevated, a marked increase in the HbA1c level is observed The increase is almost directly proportional to the HbF level up to 40 percent. This new column technique is therefore useful in eliminating labile **glycosylated** Hb intermediates but must be coupled with other techniques if high HbF values

are present.
ST HbA1c detn abnormal Hb chromatog
IT Hemoglobins
RL: ANST (Analytical study)
(abnormal, interference by, in Hb A1c determination by microcolumn chromatog.)
IT 62572-11-6
RL: ANT (Analyte); ANST (Analytical study)
(determination of, in human blood by microcolumn chromatog., Hb F interference in)
IT 9034-63-3
RL: ANST (Analytical study)
(interference by, in Hb A1c determination by microcolumn chromatog.)

L4 ANSWER 71 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1985:4540 CAPLUS
DN 102:4540
ED Entered STN: 12 Jan 1985
TI Determination of tryptophan as the reduced derivative by acid hydrolysis and chromatography
AU Wong, W. S. Dominic; Osuga, David T.; Burcham, Timothy S.; Feeney, Robert E.
CS Dep. Food Sci. Technol., Univ. California, Davis, CA, 95616, USA
SO Analytical Biochemistry (1984), 143(1), 62-70
CODEN: ANBCA2; ISSN: 0003-2697
DT Journal
LA English
CC 17-1 (Food and Feed Chemistry)
Section cross-reference(s): 9
AB A new procedure for the analyses of tryptophan [73-22-3] and the total amino acid composition of proteins was based on the observations that pyridine **borane** reduces tryptophan in trifluoroacetic acid while other amino acids remain intact (Kurata, M. et al. 1980). Concentrated HCl was used instead of trifluoroacetic acid for anal. purposes. The products were stable to hydrolysis in 6 N HCl, and the reduction did not interfere with hydrolysis and subsequent analyses. Quant. recovery was achieved with most proteins when they were subjected to acid reduction in ice-cooled concentrated HCl with 2 incremental addns. of pyridine **borane**. The reaction was terminated after 10 min by dilution with an equal volume of H_2O, vacuum sealing, and hydrolyzing at 110° for 22 h. The yields of the expected values for cytochrome c [9007-43-6], catalase [9001-05-2], bovine serum **albumin**, subtilisin [9014-01-1] BPN', trypsin [9002-07-7], chymotrypsin [9004-07-3], β-lactoglobulin, lysozyme [9001-63-2], and pepsin [9001-75-6] were obtained. Ovotransferrin and ovalbumin, however, yielded values for tryptophan lower than literature values. With 2 different **ion-exchange** methods, the recoveries of all other amino acids were comparable to those obtained by acid hydrolysis with 6 N HCl. Since the same hydrolyzate can be analyzed for both tryptophan and all the other amino acids, the procedure is a more convenient method than those requiring sep. detns. Initial results indicate that the method may be applied to high-performance liquid chromatog. procedures with adaptations of the protocols if necessary.
ST tryptophan detn protein; amino acid detn protein; chromatog tryptophan
IT Amino acids, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination of, in proteins, by acid hydrolysis and chromatog.)
IT Proteins
RL: AMX (Analytical matrix); ANST (Analytical study)
(tryptophan determination in, by acid hydrolysis and chromatog.)
IT 9014-01-1
RL: BIOL (Biological study)

(BN', tryptophan determination in, by acid hydrolysis and chromatog.)
IT 73-22-3, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination of, in proteins, by acid hydrolysis and chromatog.)
IT 9001-05-2 9001-63-2 9001-75-6 9002-07-7 9004-07-3 9007-43-6, analysis
RL: AMX (Analytical matrix); ANST (Analytical study)
(tryptophan determination in, by acid hydrolysis and chromatog.)

L4 ANSWER 72 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1985:4095 CAPLUS
DN 102:4095
ED Entered STN: 12 Jan 1985
TI Nonenzymic **glycation** of human lens crystallin. Effect of aging and diabetes mellitus
AU Garlick, Robert L.; Mazer, Jonathan S.; Chylack, Leo T., Jr.; Tung, William H.; Bunn, H. Franklin
CS Lab. Howard Hughes Med. Inst., Brigham and Women's Hosp., Boston, MA, 02115, USA
SO Journal of Clinical Investigation (1984), 74(5), 1742-9
CODEN: JCINAO; ISSN: 0021-9738
DT Journal
LA English
CC 14-8 (Mammalian Pathological Biochemistry)
Section cross-reference(s): 13
AB The nonenzymic **glycation** of human lens crystallin from 16 normal human ocular lenses 0.2-99 yr of age, and from 11 diabetic lenses 52-82-yr-old was examined The glucitol-lysine (Glc-Lys) content of soluble and insol. crystallin was determined after reduction with [3H]**borohydride** followed by acid hydrolysis, **boronic** acid affinity chromatog., and high-pressure **cation-exchange** chromatog. Normal lens crystallin, soluble and insol., had 0.028 nmol Glc-Lys per nmol crystallin monomer. Soluble and insol. crystallins had equivalent levels of **glycation**. The content of Glc-Lys in normal lens crystallin increased with age in a linear fashion. Thus, the nonenzymic **glycation** of nondiabetic lens crystallin may be regarded as a biol. clock. The diabetic lens crystallin samples had a higher content of Glc-Lys (0.070 nmol/nmol monomer). Over an age range comparable to that of the control samples, the diabetic crystallin samples contained about twice as much Glc-Lys. The Glc-Lys content of the diabetic lens crystallin samples did not increase with lens age.
ST crystallin nonenzymic **glycosylation** aging diabetes
IT Senescence and Senility
(nonenzymic **glycosylation** of lens crystallins in relation to, in humans)
IT Diabetes mellitus
(nonenzymic **glycosylation** of lens crystallins in, in humans)
IT Crystallins
RL: BIOL (Biological study)
(nonenzymic **glycosylation** of, of lenses, aging and diabetes effect on, in humans)

L4 ANSWER 73 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1984:566666 CAPLUS
DN 101:166666
ED Entered STN: 10 Nov 1984
TI Measurement of nonenzymic protein **glycosylation**
AU Flueckiger, Rudolf; Gallop, Paul M.
CS Zent. Lehre Forsch., Kantonsspit. Basel, Basel, CH-4031, Switz.
SO Methods in Enzymology (1984), 106(Posttransl. Modif., Part A), 77-87
CODEN: MENZAU; ISSN: 0076-6879
DT Journal
LA English

CC 9-10 (Biochemical Methods)
AB Charge-dependent methods (e.g., **ion-exchange** chromatog., isoelec. focusing, agar gel electrophoresis, **boronate** affinity chromatog., RIA, phytic acid method) as well as chemical procedures (e.g., NaBH4 reduction, thiobarbituric acid colorimetry, periodate oxidation, furosine assay) are discussed for quantitating nonenzymic **glycosylation** of proteins such as Hb and of proteins other than Hb which are also enzymically **glycosylated.**
ST protein nonenzymic **glycosylation** detn; Hb nonenzymic **glycosylation** detn
IT Hemoglobins
Proteins
RL: ANST (Analytical study)
(nonenzymic **glycosylation** of, determination of, methods for)
IT **Glycosidation**
(of proteins, nonenzymic, determination of, methods for)
IT Isoelectric focusing
(proteins nonenzymic **glycosylation** determination by)
IT Chromatography, column and liquid
(affinity, proteins nonenzymic **glycosylation** determination by)
IT Electrophoresis and Ionophoresis
(gel, proteins nonenzymic **glycosylation** determination by)
IT Chromatography, column and liquid
(ion-exchange, proteins nonenzymic **glycosylation** determination by)
IT Immunochemical analysis
(radioimmunoassay, proteins nonenzymic **glycosylation** determination by)
IT Spectrochemical analysis
(spectrophotometric, proteins nonenzymic **glycosylation** determination by)

L4 ANSWER 74 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1984:547100 CAPLUS
DN 101:147100
ED Entered STN: 27 Oct 1984
TI **Glycosylated** hemoglobin and plasma **glycoprotein** assays by affinity chromatography
AU Willey, David G.; Rosenthal, M. A.; Caldwell, S.
CS Dep. Pathol., Akron Gen. Med. Cent., Akron, OH, USA
SO Diabetologia (1984), 27(1), 56-8
CODEN: DBTGAJ; ISSN: 0012-186X
DT Journal
LA English
CC 9-3 (Biochemical Methods)
Section cross-reference(s): 13, 14
AB A rapid chromatog. method for separating **glycosylated** protein from nonglycosylated protein, using a **boronate**-agarose affinity medium which selectively binds the cis-diol groups of glycoproteins, was used to quantitate plasma **glycoprotein** as well as glycoHb. The results were independent of temperature from 16.5 to 29.8°, Hb variants, and aldimine **glycoprotein** adducts. Thus, several of the common problems occurring in existing Hb A1 assays are eliminated. There was a close correlation between glycoHb measured by affinity chromatog. and Hb A1 by **cation-exchange** (r = 0.959). Specimens from diabetic patients and healthy volunteers were assayed. The following reference ranges were established: glycoHb 5.5-8.4%, **glycosylated** total protein 11.5-16.2%, and glycoalbumin 11.6-19.5%.
ST diabetes glycoHb detn plasma; affinity chromatog glycoHb **glycoprotein**; plasma glycoHb **glycoprotein** detn
IT Glycoproteins
RL: ANT (Analyte); ANST (Analytical study)
(determination of, in blood plasma of humans by affinity chromatog. on boronate-agarose)

IT Diabetes mellitus
(glycoHbs and glycoproteins of blood plasma of humans in)
IT Blood analysis
(glycoproteins determination in, of humans by affinity chromatog. on boronate-agarose)
IT Chromatography, column and liquid
(affinity, of glycoHbs and glycoproteins, on boronate-agarose)
IT Albumins, blood plasma
Hemoglobins
RL: ANT (Analyte); ANST (Analytical study)
(glyco-, determination of, in blood plasma of humans by affinity chromatog. on
boronate-agarose)
IT 9062-63-9
RL: ANT (Analyte); ANST (Analytical study)
(determination of, in blood plasma of humans by affinity chromatog. on boronate-agarose)

L4 ANSWER 75 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1984:527863 CAPLUS
DN 101:127863
ED Entered STN: 13 Oct 1984
TI Heparan sulfate proteoglycans of human neuroblastoma cells: affinity fractionation on columns of platelet factor-4+
AU Maresh, Grace A.; Chernoff, Ellen A. G.; Culp, Lloyd A.
CS Sch. Med., Case West. Reserve Univ., Cleveland, OH, 44106, USA
SO Archives of Biochemistry and Biophysics (1984), 233(2), 428-37
CODEN: ABBIA4; ISSN: 0003-9861
DT Journal
LA English
CC 13-2 (Mammalian Biochemistry)
AB Human neuroblastoma cells (Platt) were detached from tissue culture substrata with a Ca2+-chelating agent, and the suspended cells were extracted with a SDS-containing buffer to maximally solubilize their 35SO42--labeled proteoglycans. The majority of the high-mol.-weight material in these dissociative exts. was heparan sulfate proteoglycan, which resolves into 2 heterodisperse size classes upon gel filtration on columns of Sepharose CL4B. After removal of SDS from these exts. by hydrophobic chromatog. on Sep-Pak C18 cartridges, exts. were further fractionated on various affinity matrixes. All of the 35SO42--labeled material eluted as 1 peak from DEAE-Sephadex **ion-exchange** columns. In contrast, affinity fractionation on Sepharose columns derivatized with the heparin sulfate-binding protein, platelet factor 4, resolved 3 major and 1 minor subset of these components. The nonbinding fraction contained some heparan sulfate proteoglycan and some chondroitin sulfate. The weak-binding fraction contained principally heparan sulfate proteoglycan, as well as a small amount of chondroitin sulfate proteoglycan; the gel-filtration properties of these proteoglycans before or after alkaline **borohydride** treatment indicated that they were small in size, containing perhaps 2-4 **glycosaminoglycan** chains. The high-affinity fraction eluted from platelet factor 4-Sepharose was composed entirely of single-chain heparan sulfate. A portion of the heparan sulfate proteoglycan of the original extract bound to the hydrophobic affinity matrix, octyl-Sepharose, and this hydrophobic proteoglycan partitioned into the nonbinding and weak-binding fractions of the platelet factor 4-Sepharose affinity columns. Thus, the majority of the proteoglycan made by these neuronal cells in culture is of the heparan sulfate class, is small in size when compared to other characterized proteoglycans, and can be resolved into several overlapping subsets when fractionated on affinity matrixes.
ST neuroblastoma chondroitin heparan sulfate proteoglycan
IT Nerve, neoplasm
(neuroblastoma, chondroitin and heparan sulfate-containing proteoglycan

formation by, of humans)
IT Mucopolysaccharides, biological studies
RL: FORM (Formation, nonpreparative)
(proteoglycans, chondroitin sulfate-containing, formation of, by human neuroblastoma)
IT Mucopolysaccharides, biological studies
RL: FORM (Formation, nonpreparative)
(proteoglycans, heparan sulfate-containing, formation of, by human neuroblastoma)
IT 9007-28-7 9050-30-0
RL: BIOL (Biological study)
(proteoglycans containing, formation of, by human neuroblastoma)

L4 ANSWER 76 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1984:435350 CAPLUS
DN 101:35350
ED Entered STN: 04 Aug 1984
TI Effects of azotemia on results of the **boronate**-agarose affinity and **ion-exchange** methods for **glycated** hemoglobin
AU Scott, Mitchell G.; Hoffmann, Joseph W.; Meltzer, Victor N.; Siegfried, Barry A.; Chan, Kwok Ming
CS Sch. Med., Washington Univ., St. Louis, MO, 63110, USA
SO Clinical Chemistry (Washington, DC, United States) (1984), 30(6), 896-8
CODEN: CLCHAU; ISSN: 0009-9147
DT Journal
LA English
CC 9-3 (Biochemical Methods)
Section cross-reference(s): 14
AB The effect of azotemia on results for **glycated** Hb as measured by a **boronate**-agarose affinity method and an **ion-exchange** chromatog. procedure with saline preincubation was evaluated. A good correlation was found. However, values for **glycated** Hb in samples from nondiabetic patients with various degrees of azotemia were consistently higher with the **ion-exchange** column procedure (mean, 8.5%) than with the **boronate** affinity method (mean, 6.2%). The latter method may thus be preferred for monitoring **glycated** Hb in diabetic patients with impaired renal function.
ST **glycated** Hb detn azotemia diabetes; affinity chromatog **glycated** Hb azotemia; ion exchange chromatog **glycated** Hb
IT Chromatography, column and liquid
(affinity, of **glycated** Hbs, azotemia interference in)
IT Blood
(disease, azotemia, **glycated** Hbs in, in humans, chromatog. of)
IT Hemoglobins
RL: ANT (Analyte); ANST (Analytical study)
(glyco-, determination of, in humans by affinity chromatog. or ion-exchange chromatog., azotemia interference in)
IT Chromatography, column and liquid
(ion-exchange, of **glycated** Hbs, azotemia interference in)

L4 ANSWER 77 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1984:402556 CAPLUS
DN 101:2556
ED Entered STN: 07 Jul 1984
TI Structures of the O-linked oligosaccharides of the major cell surface sialoglycoprotein of MAT-B1 and MAT-C1 ascites sublines of the 13762 rat mammary adenocarcinoma
AU Hull, Steven R.; Laine, Roger A.; Kaizu, Tokio; Rodriguez, Ignacio; Carraway, Kermit L.
CS Sch. Med., Univ. Miami, Miami, FL, 33101, USA

SO Journal of Biological Chemistry (1984), 259(8), 4866-77
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English
CC 6-3 (General Biochemistry)
AB Structures of the principal O-**glycosides** from the major cell surface sialoglycoprotein A (ASGP-1) of the MAT-B1 and MAT-C1 ascites sublines of the 13762 rat mammary adenocarcinoma were determined Oligosaccharitols were released by alkaline **borohydride** treatments of ASGP-1 and purified by gel filtration, DEAE-Sephadex **ion-exchange** chromatog., and HPLC. On the basis of carbohydrate composition, methylation anal., IO4- oxidation, and exoglycosidase digestion, the 5 major oligosaccharides released by mild alkaline **borohydride** were assigned the following structures: Component II-3: (NeuAcα2→3Galβ1→4GlcNAcβ1→6)GalNAcOH(3←1βGal3←2αNeuAc), III-2a: (Galβ1→4GlcNAcβ1→6)GalNAcOH(3←1βGal3.raw.2αNeuAc), III-2c: (Galα1→3Galβ1→4GlcNAc.beta.1→6)GalNAcOH(3←1βGal3←2αNeuAc), IV-1a: (Galβ1→4GlcNAcβ1→6)GalNAcOH(3←1βGal), and IV-1c: (Galα1→3Galβ1→4GlcNAcβ1→6)GalNAcOH(3←1βGal). Fucosylated derivs. of III-2a, IV-1a, and IV-1c were found in smaller amts. with the fucose tentatively assigned to the 2-position of the lactosamine galactose. Components II-3, III-2a, and the fucosylated derivative of III-2A were found in both MAT-B1 and MAT-C1 sublines. The α-galactosides were found in detectable quantities only in sublines MAT-B1. Oligosaccharides from MAT-C1 cells were enriched in sialic acid when compared to those from MAT-B1 cells. These results suggest that the 13762 ascites sublines, which bear different oligosaccharides, will provide models useful for the investigation of mechanisms regulating the expression of structures of the larger O-linked oligosaccharides.
ST oligosaccharide structure sialoglycoprotein mammary adenocarcinoma ascites; **glycoprotein** oligosaccharide structure mammary adenocarcinoma ascites
IT Oligosaccharides
RL: BIOL (Biological study)
(of major sialomucin of surface of mammary adenocarcinoma cells, structure of O-linked)
IT Neoplasm, composition
(oligosaccharides of major cell surface sialomucins of, structure of O-linked, of mammary gland)
IT Agglutinins and Lectins
RL: PROC (Process)
(sialomucin of mammary adenocarcinoma cell membrane binding of)
IT Mammary gland
(neoplasm, adenocarcinoma, oligosaccharides of major surface sialomucins of, structure of O-linked)
IT Mucins
RL: BIOL (Biological study)
(sialo-, oligosaccharides of, of surface of mammary adenocarcinoma cells, structure of O-linked)
IT 90393-57-0 90393-58-1 90393-59-2 90393-60-5 90393-61-6
90393-62-7 90393-63-8 90424-59-2
RL: BIOL (Biological study)
(of major sialomucin of surface of mammary adenocarcinoma cells, structure of)

L4 ANSWER 78 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1984:117318 CAPLUS
DN 100:117318
ED Entered STN: 12 May 1984

TI Quantitation of **glycosylated** hemoglobin by boronate affinity chromatography
AU Flueckiger, Rudolf; Woodtli, Thomas; Berger, Willi
CS Univ. Clin., Kantonsspital, Basel, Switz.
SO Diabetes (1984), 33(1), 73-6
CODEN: DIAEAZ; ISSN: 0012-1797
DT Journal
LA English
CC 9-3 (Biochemical Methods)
Section cross-reference(s): 14
AB Total Hb **glycosylation** and the contribution of **glycosylation** at the N-terminus of the β-chains and at non-β-N-terminal positions were quantitated by use of **boronate** affinity and **ion-exchange** chromatog. GlycoHb (y) correlated linearly (y = 1.92x + 0.53; r = 0.96) with Hb A1c (x) and contained .apprx.50% β-N-terminally **glycosylated** Hb. This result is in agreement with the binding on **boronate** agarose of the various Hb components resolved by **cation-exchange** chromatog. An amount of glycoHb similar to that of Hb A1c was isolatable from HbA. A slope of <2 results because Hb A1c is retained only to 93%, and the intercept of the regression line reflects the partial adherence (65%) of Hb A1a+b to the resin. These results confirm the occurrence of significant non-β-N-terminal **glycosylation** and show that under optimal chromatog. conditions total glycoHb can be determined with **boronate** affinity chromatog.
ST blood glycoHb detn; **boronate** affinity chromatog glycoHb; **cation exchange** chromatog glycoHb
IT Diabetes mellitus
(glycoHbs of blood of humans in)
IT Chromatography, column and liquid
(affinity, of glycoHbs)
IT Chromatography, column and liquid
(cation-exchange, of glycoHbs)
IT Hemoglobins
RL: ANT (Analyte); ANST (Analytical study)
(glyco-, determination of, in blood of humans by **boronate** affinity and **cation-exchange** chromatog.)
IT 9034-51-9 59979-43-0 62572-11-6 69865-65-2 69865-66-3
RL: ANT (Analyte); ANST (Analytical study)
(determination of, in blood of humans by **boronate** affinity and **cation-exchange** chromatog.)

L4 ANSWER 79 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1984:31682 CAPLUS
DN 100:31682
ED Entered STN: 12 May 1984
TI Measurement of **glycosylated** hemoglobins using boronate affinity chromatography
AU Herold, David A.; Boyd, James C.; Bruns, David E.; Emerson, Julia C.; Burns, Kathy G.; Bray, Ruth E.; Vandenhoff, George E.; Freedlender, Arthur E.; Fortier, Gregory A.; et al.
CS Med. Cent., Univ. Virginia, Charlottesville, VA, 22908, USA
SO Annals of Clinical and Laboratory Science (1983), 13(6), 482-8
CODEN: ACLSCP; ISSN: 0091-7370
DT Journal
LA English
CC 9-3 (Biochemical Methods)
Section cross-reference(s): 13, 14
AB A **boronate** affinity column method for the measurement of glycoHb was evaluated. In the procedure, the glycoHbs were bound by immobilized **boronic** acid to sep. them from nonglycosylated Hbs. Elution of bound glycoHbs was carried out with sorbitol buffer, and the absorbance was read at 414 nm. The method was linear to a glycoHb concentration of at least

20%. The precision of the method ranged 1.2-2.8% within-run and 3.4-5.3% day-to-day. The reference interval was 4.8-6.4%. The method correlated with a **cation-exchange resin** mini-column method (r = 0.94) and a colorimetric method (r = 0.93), but results from the **boronate** affinity method were higher in diabetic patients. The measured glycoHb was significantly correlated with estimated 1-day mean plasma glucose in diabetic patients (r = 0.54). The affinity chromatog. method provides an attractive alternative to earlier methods for measuring glycoHbs.

ST glycoHb detn blood; boronate affinity chromatog glycoHb; spectrophotometry glycoHb detn

IT Diabetes mellitus
(glycoHbs of human blood in)

IT Blood sugar
(in diabetes mellitus, glycoHbs relation to, in humans)

IT Chromatography, column and liquid
(affinity, of glycoHbs)

IT Hemoglobins
RL: ANT (Analyte); ANST (Analytical study)
(glyco-, determination of, in human blood by boronate affinity chromatog. and spectrophotometry)

IT Spectrochemical analysis
(spectrophotometric, for glycoHbs)

IT 9012-36-6D, reaction products with aminophenylboronic acid 30418-59-8D, reaction products with agarose
RL: ANST (Analytical study)
(for affinity chromatog. of glycoHbs)

L4 ANSWER 80 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1983:571540 CAPLUS
DN 99:171540
ED Entered STN: 12 May 1984
TI Comparative analysis of glycopeptides derived from human platelet membrane **glycoprotein** Ib
AU Carnahan, Gary E.; Cunningham, Leon W.
CS Sch. Med., Vanderbilt Univ., Nashville, TN, 37232, USA
SO Biochemistry (1983), 22(23), 5384-9
CODEN: BICHAW; ISSN: 0006-2960
DT Journal
LA English
CC 6-3 (General Biochemistry)
AB A procedure was developed for the purification of both macroglycopeptide (I) and glycocalicin (II) from human blood platelet plasma membranes. It consisted of **ion-exchange** chromatog. on DEAE-Sephacel, lectin affinity chromatog. on wheat germ agglutinin coupled to Sepharose, and gel filtration chromatog. under denaturing conditions and avoided exposure of these sialylated glycoproteins to acidic conditions. Electrophoretic evidence for the purity of I and II prepared by this procedure was obtained by Laemmli SDS-polyacrylamide gel electrophoresis of samples radiolabeled by sequential Na metaperiodate oxidation and **borotritide** reduction Electrophoresis gave apparent mol. wts. of 108,000 and 118,000 for I and II, resp. However, sedimentation equilibrium centrifugation expts., using the meniscus-depletion method in 6M guanidine-HCl, established the weight-average mol. wts. of I and II as 59,700 and 105,600, resp. The mol. weight detns. were the 1st by a primary phys. method for platelet I and II and, together with compositional anal., permitted calcn. of the composition of the 2 glycopeptides in terms of residues/mol., which was consistent with the derivation of I from II by proteolysis.

ST **glycoprotein** Ib glycopeptide blood platelet; macroglycopeptide purifn blood platelet; glycocalicin purifn blood platelet

IT Blood platelet

(glycocalicin and macroglycopeptide of cell membrane of, of human, purification and characterization of)
IT Cell membrane
(glycocalicin and macroglycopeptide of, of human blood platelet, purification and characterization of)
IT Amino acids, biological studies
Carbohydrates and Sugars, biological studies
RL: BIOL (Biological study)
(of glycocalicin and macroglycopeptide, of human blood platelet membrane)
IT Glycoproteins
RL: BIOL (Biological study)
(Ib, of blood platelet membrane, of human, purification and characterization of glycopeptides derived from)
IT Glycoproteins
RL: BIOL (Biological study)
(glycocalicins, of blood platelet membrane, of human, purification and characterization of)
IT Sialoglycopeptides
RL: BIOL (Biological study)
(macro-, of blood platelet membrane, of human, purification and characterization of)

L4 ANSWER 81 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1983:434708 CAPLUS
DN 99:34708
ED Entered STN: 12 May 1984
TI The principal site of nonenzymic **glycosylation** of human serum **albumin** in vivo
AU Garlick, Robert L.; Mazer, Jonathan S.
CS Brigham and Women's Hosp., Harvard Med. Sch., Boston, MA, 02115, USA
SO Journal of Biological Chemistry (1983), 258(10), 6142-6
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English
CC 6-3 (General Biochemistry)
AB The major site of nonenzymic **glycosylation** of human serum **albumin** was determined in vivo. This was accomplished by reacting freshly purified human serum **albumin** with Na[3H]BH4 followed by aminoethylation and tryptic digestion. The tryptic peptides were separated into a soluble fraction which contained 88% of the total 3H radioactivity and an insol. fraction. To isolate the 3H-labeled **glycosylated** peptides, the soluble tryptic peptide fraction was first subjected to **boronic** acid affinity chromatog. **Cation-exchange** chromatog. then separated the soluble **glycosylated** peptides into a major peak which contained 48% of the total recovered 3H radioactivity and a number of minor peptide fractions. The amino acid composition of the major peptide was: threonine, 2 glutamate, alanine, 2 valine, 2 leucine, lysine, and lysino-1-deoxysorbitol. In accord with the primary structure of human serum **albumin**, this amino acid composition corresponds precisely to residues 525-534. Glucitol-lysine, the N-terminal residue of this peptide, is totally resistant to cleavage by trypsin. Thus, lysine-525 is the predominant site of nonenzymic **glycosylation** of human serum **albumin** in vivo. Chromatog. on GlycoGel B **boronic** acid affinity gel indicates that 10-12% of normal serum **albumin** is **glycosylated**. The rate of nonenzymic **glycosylation** of this protein in vivo is .apprx.9-fdd that of human Hb.
ST serum **albumin** nonenzymic **glycosylation**
IT Albumins, blood serum
RL: RCT (Reactant); RACT (Reactant or reagent)
(nonenzymic **glycosidation** of, of human, site of)

IT **Glycosidation**
(nonenzymic, of **albumin** of human blood serum, site of)
IT Amino acids, biological studies
RL: BICL (Biological study)
(of **glycosylated albumin**, of human blood serum)
IT 56-87-1, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(nonenzymic **glycosidation** of, of **albumin** of human blood serum)

L4 ANSWER 82 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1983:419076 CAPLUS
DN 99:19076
ED Entered STN: 12 May 1984
TI Characterization of **glycosylated** hemoglobins. Relevance to monitoring of diabetic control and analysis of other proteins
AU Garlick, Robert L.; Mazer, Jonathan S.; Higgins, Paul J.; Bunn, H. Franklin
CS Howard Hughes Med. Inst., Harvard Med. Sch., Boston, MA, 02115, USA
SO Journal of Clinical Investigation (1983), 71(5), 1062-72
CODEN: JCINAO; ISSN: 0021-9738
DT Journal
LA English
CC 9-3 (Biochemical Methods)
Section cross-reference(s): 14
AB **Boronate** affinity chromatog. and **ion-exchange** chromatog. were used to measure the levels of **glycosylated** Hbs in normal and diabetic hemolyzates, as well as the distribution of glucose adducts on α-NH2-valine and ε-NH2-lysine residues. When analyzed by **ion-exchange** chromatog. on BioRex 70 **resin**, the Hb A1c peak comprised 4.4% of 15 normal hemolyzates and 9.1% of 15 diabetic hemolyzates. The Hb A1c was rechromatographed on GlycoGel B **boronate** affinity resin that binds vicinal hydroxyl groups of covalently linked sugars. Only 70% of the Hb adhered to the resin. Anal. by the thiobarbituric acid colorimetric test confirmed that the affinity resin effectively separated **glycosylated** from nonglycosylated Hb. When corrected for nonglycosylated contaminants, the mean level of Hb A1c in normal hemolyzates was 2.9%, a value considerably lower than those previously reported. In addition to Hb A1c, 5.2% of the remaining Hb (Hb A0) was **glycosylated**. In diabetics, **glycosylated** A0 was increased in parallel with Hb A1c. After reduction with [3H] **borohydride** and acid hydrolysis, **glycosylated** amino acids were 1st purified on Affi-Gel **boronate** affinity **resin** and then analyzed by **ion-exchange** chromatog. The glucose adducts on Hb A0 were distributed as follows: α-chain N-terminal valine, 14%; α-chain lysines, 40%; β-chain lysines, 46%. Several pitfalls in the anal. of nonenzymically **glycosylated** proteins were revealed. Peaks isolated by **ion-exchange** chromatog. or electrophoresis are likely to be contaminated by nonglycosylated proteins. Furthermore, both the thiobarbituric acid test and [3H]**borohydride** reduction show variable reactivity depending upon the site of the ketoamine-linked glucose.
ST diabetes **glycosylated** Hb; chromatog Hb A1c
IT Diabetes mellitus
(**glycosylated** Hbs detection in, by **boronate** affinity and **ion-exchange** chromatog. in humans)
IT Chromatography, column and liquid
(affinity, of **glycosylated** Hbs)
IT Hemoglobins
RL: ANT (Analyte); ANST (Analytical study)
(glyco-, determination of, by **boronate** affinity and **ion-exchange** chromatog. in diabetes in humans)

IT Chromatography, column and liquid
(ion-exchange, of **glycosylated** Hbs)
IT 54651-57-9
RL: ANT (Analyte); ANST (Analytical study)
(determination of, by chromatog. in diabetes in humans)
IT 62572-11-6
RL: ANT (Analyte); ANST (Analytical study)
(determination of, in blood by ion-exchange chromatog. in diabetes in humans,
correction from nonglycosylated contaminant in)
IT 54651-57-9D, **glycosylated**
RL: ANT (Analyte); ANST (Analytical study)
(determination of, in diabetes in humans and identification of sites of glucose
adducts by chromatog.)

L4 ANSWER 83 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1983:2383 CAPLUS
DN 98:2383
ED Entered STN: 12 May 1984
TI Separation of acidic oligosaccharides by liquid chromatography: application to analysis of sugar chains of glycoproteins
AU Tsuji, Tsutomu; Yamamoto, Kazuo; Konami, Yukiko; Irimura, Tatsuro; Osawa, Toshiaki
CS Fac. Pharm. Sci., Univ. Tokyo, Tokyo, 113, Japan
SO Carbohydrate Research (1982), 109, 259-69
CODEN: CRBRAT; ISSN: 0008-6215
DT Journal
LA English
CC 9-3 (Biochemical Methods)
AB An **ion-exchange** chromatog. system was developed to sep. acidic oligosaccharides. Application of this system for the anal. of carbohydrate chains of glycoproteins was examined, and this system afforded high resolution of acidic oligosaccharide isomers. 3'-O-Neuraminyllactose, 6'-O-neuraminyllactose, and N-acetyl-6'-O-neuraminyllactosamine could be separated from bovine colostrum. When the oligosaccharide fraction released from bovine submaxillary mucin by treatment with alkaline **borohydride** was separated by this system, there was good separation of GlcNAc-(1→3)-[NeuAc-(2→6)]-GalNAcol as well as NeuAc- or NeuGc-(2→6)-GalNAcol. When the serine- or threonine-linked oligosaccharide fraction obtained from human glycophorin A was separated by this system, NeuAc-(2→3)-Gal(1→3)-GalNAcol and Gal-(2→3)-[NeuAc-(2→6)]-GalNAcol were separated from each other. The separation of complex types of sugar chains of porcine thyroglobulin was achieved with this system.
ST acidic oligosaccharide liq chromatog **glycoprotein**; ion exchange chromatog acidic oligosaccharide
IT Oligosaccharides
RL: ANST (Analytical study)
(determination of acidic, by ion-exchange chromatog.)
IT Mucins
RL: ANST (Analytical study)
(sugar chain anal. of submaxillary, by ion-exchange chromatog.)
IT Colostrum
Thyroglobulins
RL: PROC (Process)
(sugar chain anal. of, by ion-exchange chromatog.)
IT Glycoproteins
RL: ANST (Analytical study)
(sugar chains determination in, by ion-exchange chromatog.)
IT Glycophorins
RL: PROC (Process)
(A, sugar chain anal. of, by ion-exchange chromatog.)

IT Chromatography, column and liquid
(ion-exchange, of acidic oligosaccharides)
IT 83800-27-5 83800-28-6 83800-29-7
RL: ANT (Analyte); ANST (Analytical study)
(determination of, in thyroglobulin by ion-exchange chromatog.)
IT 35890-38-1 35890-39-2 78969-47-8
RL: ANT (Analyte); ANST (Analytical study)
(determination of, of colostrum by ion-exchange chromatog.)
IT 68314-59-0 68366-21-2
RL: ANT (Analyte); ANST (Analytical study)
(determination of, of human glycophorin A by ion-exchange chromatog.)
IT 70238-68-5 70268-06-3 75472-69-4
RL: ANT (Analyte); ANST (Analytical study)
(determination of, of submaxillary mucin by ion-exchange chromatog.)

L4 ANSWER 84 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1982:558274 CAPLUS
DN 97:158274
ED Entered STN: 12 May 1984
TI Structural studies of the acidic oligosaccharide units from bovine glycophorin
AU Fukuda, Kayoko; Kawashima, Ikuo; Tomita, Motowo; Hamada, Akira
CS Sch. Pharm. Sci., Showa Univ., Tokyo, Japan
SO Biochimica et Biophysica Acta (1982), 717(2), 278-88
CODEN: BBACAQ; ISSN: 0006-3002
DT Journal
LA English
CC 6-3 (General Biochemistry)
AB The O-**glycosidically**-linked carbohydrate units of glycophorin from bovine erythrocyte membrane were released by alkaline **borohydride** treatment. These oligosaccharides were separated into neutral and acidic fractions by **ion-exchange** chromatog. followed by gel filtration. The 2 acidic fractions (fractions 10 and 13) which had the smallest mol. wts. of the acidic oligosaccharides, were further purified by gel filtration on Bio-Gel P-4 column. Two acidic heptasaccharides (fractions 10-I and 10-II) were separated by gel filtration on a Bio-Gel P-4 column from fraction 10. The structures were determined by methylation analyzes, HNO2 deamination after hydrazinolysis, and Smith degradation after desialylation. In addition, the structures were also analyzed by direct-probe mass spectrometry of the permethylated derivs. before and after desialylation. Although another acidic fraction (fraction 13) was obtained as a single peak on a Bio-Gel P-4 column, it appeared to be the mixture of a heptasaccharide and an oligosaccharide similar to fraction 10-II, by anal. of 2 products obtained by Smith degradation after desialylation.
ST glycophorin oligosaccharide structure erythrocyte
IT Erythrocyte
(glycophorin of, structure of oligosaccharides of)
IT Molecular structure, natural product
(of glycophorin oligosaccharides)
IT Oligosaccharides
RL: BIOL (Biological study)
(of glycophorin, structure of)
IT Glycophorins
RL: BIOL (Biological study)
(oligosaccarides of, structure of)
IT 83348-03-2 83348-04-3 83348-05-4 83351-94-4
RL: BIOL (Biological study)
(of glycophorin, of erythrocyte membrane)

L4 ANSWER 85 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1982:195467 CAPLUS
DN 96:195467

ED Entered STN: 12 May 1984
TI Isolation and characterization of alkali-labile oligosaccharide units from porcine erythrocyte glycophorin
AU Kawashima, Ikuo; Fukuda, Kayoko; Tomita, Motowo; Hamada, Akira
CS Sch. Pharm. Sci., Showa Univ., Tokyo, 142, Japan
SO Journal of Biochemistry (Tokyo, Japan) (1982), 91(3), 865-72
CODEN: JOBIAO; ISSN: 0021-924X
DT Journal
LA English
CC 6-4 (General Biochemistry)
AB The oligosaccharide units of glycophorin isolated from porcine erythrocyte membranes were released by alkaline **borohydride** treatment and purified by gel filtration and **ion-exchange** chromatog. Structures of the O-**glycosidic** oligosaccharides were determined by methylation anal., the methylated sugar being identified by gas-liquid chromatog.-mass spectrometry and nitrous acid deamination after hydrazinolysis. The major oligosaccharide was a trisaccharide, Gal(1→3)[NeuNGly(2→6)]GalNAc (where NeuNGly = N-glycoylneuraminic acid). The other oligosaccharides were larger and contained GlcNAc. One was a pentasaccharide, Gal(1→3)Gal(1→4)GlcNAc(1→3)Gal(1→3)GalNAc. The structure of the trisaccharide was also analyzed by direct-probe mass spectrometry of the permethylated derivative, and the result obtained was consistent with the proposed structure.
ST oligosaccharide glycophorin erythrocyte membrane
IT Glycopeptides
Oligosaccharides
RL: BIOL (Biological study)
(of glycophorin, of erythrocyte membrane, isolation and characterization of)
IT Carbohydrates and Sugars, biological studies
RL: BIOL (Biological study)
(of oligosaccharides, of glycophorin of erythrocyte membrane)
IT Mass spectra
(of trisaccharide, of glycophorin of erythrocyte membrane)
IT Erythrocyte
(oligosaccharides of glycophorin of cell membrane of, isolation and characterization of)
IT Cell membrane
(oligosaccharides of glycophorin of, of erythrocytes, isolation and characterization of)
IT 81618-23-7 81654-90-2
RL: BIOL (Biological study)
(of glycophorin, of erythrocyte membrane)

L4 ANSWER 86 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1982:179166 CAPLUS
DN 96:179166
ED Entered STN: 12 May 1984
TI N-Acetyl-D-galactosaminyl-β-(1 → 4)-D-galactose: a terminal nonreducing structure in human blood group Sda-active Tamm-Horsfall urinary **glycoprotein**
AU Donald, A. S. R.; Soh, Cecilia P. C.; Watkins, Winifred M.; Morgan, W. T. J.
CS Div. Immunochem. Genet., MRC Clin. Res. Cent., Harrow/Middx., HA1 3UJ, UK
SO Biochemical and Biophysical Research Communications (1982), 104(1), 58-65
CODEN: BBRCA9; ISSN: 0006-291X
DT Journal
LA English
CC 15-2 (Immunochemistry)
AB Human Sda-active Tamm-Horsfall urinary **glycoprotein**, labeled with galactose oxidase and tritiated Na **borohydride**, contained both galactose and N-acetylgalactosamine as [3H]-labeled terminal

non-reducing sugars. Fragmentation of the macromol. achieved by hydrazinolysis and acid hydrolysis was followed by fractionation of the degradation products by gel filtration, **ion exchange** and paper chromatog. A major product was a disaccharide which contained unlabeled galactose and [3H]-labeled N-acetylgalactosamine. Sugar anal., Na **borohydride** reduction, methylation anal. and enzymic degradation enabled the structure N-acetyl-D-galactosaminyl-β-(1→4)-D-galactose to be assigned to the disaccharide.

ST Tamm Horsfall **glycoprotein** sugar; acetylgalactosaminylgalactose blood group Sda

IT Urine
(Tamm-Horsfall **glycoprotein** of human, acetylgalactosaminylgalactose of)

IT Blood-group substances
RL: BIOL (Biological study)
(Sda, Tamm-Horsfall urinary **glycoprotein** with activity of, acetylgalactosaminylgalactose of)

IT Sialoglycoproteins
RL: BIOL (Biological study)
(Tamm-Horsfall, acetylgalactosaminylgalactose of, of urine of human)

IT 29923-15-7
RL: BIOL (Biological study)
(of blood group Sda-active Tamm-Horsfall urinary **glycoprotein** of human)

L4 ANSWER 87 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1982:16314 CAPLUS
DN 96:16314
ED Entered STN: 12 May 1984
TI Isolation and structural studies of the neutral oligosaccharide units from bovine glycophorin
AU Fukuda, Kayoko; Tomita, Motowo; Hamada, Akira
CS Sch. Pharm. Sci., Showa Univ., Tokyo, Japan
SO Biochimica et Biophysica Acta (1981), 677(3-4), 462-70
CODEN: BBACAQ; ISSN: 0006-3002
DT Journal
LA English
CC 6-4 (General Biochemistry)
AB The O-**glycosidically** linked carbohydrate units of glycophorin from bovine erythrocyte membranes were released as reduced oligosaccharides by alkaline **borohydride** treatment. These oligosaccharides were separated by **ion-exchange** chromatog. followed by gel filtration. Three oligosaccharides, a penta-, a hepta-, and a decasaccharide, were obtained as the major components from the neutral fraction, and 7 species were separated from the acidic fractions. All of the fractions contained galactose and N-acetylglucosamine in variable amts., as well as N-acetylgalactosaminitol (GalNAcol). Studies of the neutral oligosaccharides by methylation analyses, HNO2 deamination, and Smith degradation , indicated the structure of the pentasaccharide to be Gal-(1→3)-Gal-(1→4)-GlcNAc-(1→3)-GalNAcol and that of the heptasaccharide to be Gal-(1→3)-Gal-(1→4)-GlcNAc-(1→3)-Gal-(1→4)-GlcNAc-(1→3)-GalNAcol. The highest-mol.-weight species, the decasaccharide in the neutral fraction, had a branching point at C-6 of a galactose residue.

ST erythrocyte glycophorin neutral oligosaccharide

IT Oligosaccharides
RL: BIOL (Biological study)
(of glycophorins of erythrocyte membrane)

IT Carbohydrates and Sugars, biological studies
RL: BIOL (Biological study)
(of oligosaccharides of glycophorin of erythrocyte membrane)

IT Erythrocyte
(oligosaccharides of glycophorin of membrane of)

IT Glycophorins
RL: BIOL (Biological study)
(oligosaccharides of, of erythrocyte membrane)
IT 80257-42-7 80257-43-8 80257-44-9
RL: BIOL (Biological study)
(of glycophorin of erythrocyte membrane)

L4 ANSWER 88 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1981:187297 CAPLUS
DN 94:187297
ED Entered STN: 12 May 1984
TI The isolation and characterization of a concanavalin A receptor from boar spermatozoa surface
AU Hermann, Jacques; Keil, Borivoj
CS Dep. Biochim. Genet. Mol., Inst. Pasteur, Paris, 75724/15, Fr.
SO Biochimica et Biophysica Acta (1981), 643(1), 30-40
CODEN: BBACAQ; ISSN: 0006-3002
DT Journal
LA English
CC 6-3 (General Biochemistry)
Section cross-reference(s): 9
AB Boar spermatozoa were radioactively labeled by either lactoperoxidase-catalyzed iodination or galactose oxidase oxidation followed by reduction with tritiated Na **borohydride**. Plasma membrane glycoproteins were solubilized with the nonionic detergent, Nonidet P40, and separated by affinity chromatog. on concanavalin A-Sepharose. A major water-soluble concanavalin A receptor of mol. weight >160,000 was isolated by gel filtration and **ion-exchange** chromatog. Its amino acid and carbohydrate composition were determined This **glycoprotein** was susceptible to digestion by trypsin or chymotrypsin.
ST concanavalin A receptor sperm membrane; **glycoprotein** concanavalin binding sperm membrane
IT Sperm
(concanavalin A receptor of surface membrane of, of boar)
IT Cell membrane
(concanavalin A receptor of, of sperm)
IT Receptors
RL: BIOL (Biological study)
(for concanavalin A, of sperm membrane, purification and properties of)
IT Amino acids, biological studies
Carbohydrates, biological studies
RL: BIOL (Biological study)
(of concanavalin A-binding glycoproteins of sperm)
IT Glycoproteins
RL: BIOL (Biological study)
(concanavalin A-binding, of sperm surface membrane, purification and properties of)
IT 11028-71-0
RL: BIOL (Biological study)
(receptor for, of sperm membrane)

L4 ANSWER 89 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1980:563946 CAPLUS
DN 93:163946
ED Entered STN: 12 May 1984
TI Identification of 6-deoxyhexoses on a micro scale
AU Wagner, Hildebert; Habermeier, Helmut; Wegener, Gerd
CS Inst. Pharm. Arzneimittellehre, Univ. Muenchen, Munich, Fed. Rep. Ger.
SO Planta Medica (1980), 39(2), 135-9
CODEN: PLMEAA; ISSN: 0032-0943
DT Journal
LA German
CC 9-13 (Biochemical Methods)

AB A combined anal. method is described, which allows the identification of naturally occurring 6-deoxy hexoses of cardiac **glycosides** on a micro scale by using field-desorption mass spectroscopy, TLC, and an automatic sugar analyzer. TLC was performed on silica gel plates with CHCl3-MeOH-H2O (64:50:10) as the mobile phase. The sugar analyzer employed a 0.6 + 27 cm column packed with DA - X4-20 **ion-exchange resin**, and a single buffer system (0.3M **borate**, pH 9.1) was used. The advantage of the method is that only 2 mg **glycoside** are needed for the anal., and only glucose and rhaminose are necessary as reference substances.

ST cardiac **glycoside** deoxy hexose detection; field desorption mass spectroscopy deoxy hexose; TLC deoxy hexose; sugar autoanalyzer deoxy hexose

IT **Glycosides**
RL: ANST (Analytical study)
(cardiac, deoxy hexoses detection in, by field-desorption mass spectroscopy and chromatog.)

IT Sugars, analysis
RL: ANT (Analyte); ANST (Analytical study)
(detection of, in cardiac **glycosides** by autoanalyzer)

IT Chromatography, thin-layer
(of deoxy hexoses of cardiac **glycosides**)

IT Hexoses
RL: ANT (Analyte); ANST (Analytical study)
(deoxy, detection of, in cardiac **glycosides** by field-desorption mass spectrometry and chromatog.)

IT Mass spectroscopy
(field-desorption, of deoxy hexoses of cardiac **glycosides**)

IT Chromatography, column and liquid
(ion-exchange, automated, of deoxy hexoses of cardiac **glycosides**)

IT 50-99-7, analysis 3615-37-0 3615-41-6 4348-84-9 5158-61-2 7658-08-4 7658-09-5 7658-10-8 18546-02-6
RL: ANT (Analyte); ANST (Analytical study)
(detection of, in cardiac **glycosides** by field-desorption mass spectroscopy and chromatog.)

L4 ANSWER 90 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1980:490652 CAPLUS
DN 93:90652
ED Entered STN: 12 May 1984
TI Proteoglycans from chick limb bud chondrocyte cultures. Keratan sulfate and oligosaccharides which contain mannose and sialic acid
AU De Luca, Silvana; Lohmander, L. Stefan; Nilsson, Bo; Hascall, Vincent C.; Caplan, Arnold I.
CS Lab. Biochem., Natl. Inst. Dent. Res., Bethesda, MD, 20205, USA
SO Journal of Biological Chemistry (1980), 255(13), 6077-83
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English
CC 6-13 (General Biochemistry)
Section cross-reference(s): 12

AB The precursors, [35S]sulfate and [2-3H]mannose, were used to study the biosynthesis of keratan sulfate and other oligosaccharides on proteoglycans isolated from day 8 cultures of chick limb bud chondrocytes. After alkaline **borohydride** treatment, 3 fractions with sialic acid were separated by mol. sieve chromatog. The 1st contained keratan sulfate which was purified by digestion with chondroitinase to remove chondroitin sulfate, followed by mol. sieve and **ion exchange** chromatog. The purified keratan sulfate contained .apprx.8% of the 35S activity originally in monomer. The chains had an average length of .apprx.40 monosaccharides, and contained only trace amts. of mannose (<1 residue/3-4 chains). The 2nd fraction contained the majority of the [3H]mannose

originally in monomer, but no 35S activity. This fraction appears to contain oligosaccharide-peptides of the asparagine-N-**glycosylamine** type because there were no reduced sugars present and the alkaline **borohydride** treatment extensively degraded the core protein. The composition of the oligosaccharides, with high proportions of mannose, N-acetylglucosamine, galactose, and sialic acid, was consistent with this suggestion. The 3rd fraction consisted of a series of oligosaccharides with sizes of 3-6 saccharides. They contained N-acetylgalactosaminitol, indicating that they were attached to the core protein by O-**glycoside** bonds between N-acetylgalactosamine and OH groups on serine and threonine. Thus, proteoglycans contain 2 classes of oligosaccharides, a mannose-rich class characteristic of glycoproteins and an O-**glycoside** class characteristic of mucins, in addition to the chondroitin sulfate and keratan sulfate chains.

ST keratan sulfate proteoglycan chondrocyte; oligosaccharide proteoglycan chondrocyte

IT Animal tissue culture
(of chondrocyte, keratan sulfate and oligosaccharides of proteoglycans of)

IT Oligosaccharides
RL: BIOL (Biological study)
(of proteoglycans, of chondrocyte cultures)

IT Cartilage
Chondrocyte
(proteoglycans of, keratan sulfate and oligosaccharides of)

IT Oligosaccharides
RL: BIOL (Biological study)
(mannose-containing, of proteoglycans, of chondrocyte cultures)

IT Mucopolysaccharides, biological studies
RL: BIOL (Biological study)
(proteoglycans, keratan sulfate and oligosaccharides of, of chondrocyte cultures)

IT 9056-36-4
RL: BIOL (Biological study)
(of proteoglycans, of chondrocyte cultures)

L4 ANSWER 91 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1980:466324 CAPLUS
DN 93:66324
ED Entered STN: 12 May 1984
TI Sulfation-desulfation of a membrane component proposed to be involved in control of differentiation in Volvox carteri
AU Sumper, Manfred; Wenzl, Stephan
CS Inst. Biochem., Genet. Mikrobiol., Univ. Regensburg, Regensburg, 8400, Fed. Rep. Ger.
SO FEBS Letters (1980), 114(2), 307-12
CODEN: FEBLAL; ISSN: 0014-5793
DT Journal
LA English
CC 11-3 (Plant Biochemistry)
AB When a synchronized Volvox population was pulse labeled with 14CO2, the membrane protein patterns obtained at different developmental stages did not differ much from each other whereas, when 35SO42- was used as the label, 2 highly labeled membrane components were detected at the beginning of cell cleavage. The more prominent component had a mol. weight of 185,000 (185 K) and probably resulted from the sulfation of a preexisting membrane component. Thin-layer **ion exchange** chromatog. showed that the 185 K compound was sulfated and sensitivity to protease and binding to ConA-Sepharose indicated a **glycoprotein** structure. Pulse-chase expts. using 35SO42- with 8-celled embryos showed that the 185 K component has a high turnover rate. When short pulse labeling expts. were performed over the whole cleavage period, the correlation of net 35SO42- incorporation and cleavage stage suggested a role of a

sulfation-desulfation reaction in the control of differentiation. **Borate** inhibited the production of the sulfated 185 K **glycoprotein** further suggesting the idea of a control function of this component in differentiation.

ST Volvox differentiation membrane **glycoprotein** sulfation

IT Microorganism development
(by Volvox carteri, sulfation-desulfation of membrane **glycoprotein** in)

IT Volvox carteri
(differentiation of, sulfation-desulfation of membrane glycoproteins in)

IT Cell membrane
(**glycoprotein** of, sulfation-desulfation of, in differentiation of Volvox)

IT Sulfation
(of **glycoprotein** of membrane of Volvox, differentiation in relation to)

IT Glycoproteins
RL: BIOL (Biological study)
(of Volvox carteri, sulfation-desulfation of, differentiation in relation to)

IT 14808-79-8, biological studies
RL: BIOL (Biological study)
(turnover of, in membrane **glycoprotein**, Volvox differentiation in relation to)

L4 ANSWER 92 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1980:193055 CAPLUS
DN 92:193055
ED Entered STN: 12 May 1984
TI Sites of nonenzymic **glycosylation** of human hemoglobin A
AU Shapiro, Robert; McManus, Michael J.; Zalut, Clyde; Bunn, H. Franklin
CS Howard Hughes Med. Inst. Lab., Harvard Med. Sch., Boston, MA, 02115, USA
SO Journal of Biological Chemistry (1980), 255(7), 3120-7
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English
CC 6-3 (General Biochemistry)
AB Glucose reacts nonenzymically with α- and ε-amino groups in the major human Hb component, Hb A0, to form amino-1-deoxyfructose adducts both in vivo and in vitro. Hb AIc, the adduct formed with the N terminus of the β chains, was isolated by chromatog. and comprised .apprx.4% of the total Hb in normal red blood cells. An addnl. 8-10% of Hb A0 is **glycosylated** at the N terminus of the α chains or at lysine amino groups. These **glycosylated** species have not previously been separated from the nonglycosylated Hb A0. The specificity of this **glycosylation** was examined and the amino groups modified in vitro and in vivo were determined Purified Hb A0 was incubated with glucose-14C. **Glycosylated** peptides were isolated from tryptic digests of this Hb by a combination of **ion exchange** chromatog. and 2-dimensional peptide mapping. Amino acid anal. of these peptides revealed the major sites of in vitro **glycosylation** (in order of prevalence) to be β-valine-1, α-lysine-16, β-lysine-66, β-lysine-17, α-valine-1, α-lysine-7, and β-lysine-120. Sites in native, unincubated Hb A0 were identified by anion exchange chromatog. with **borate** buffers, which form anionic complexes with amino-1-deoxyfructose residues. The **glycosylated** Hb fraction was labeled with **borohydride**-3H and then analyzed in the same manner as the in vitro material. The major sites of **glycosylation** in order of prevalence were β-valine-1, α-lysine-66, α-lysine-61, β-lysine-17, and α-valine. Thus, there are significant differences between the in vivo and in vitro sites of **glycosylation**.

ST **glycosylation** Hb A
IT Amino group
(**glycosylation** of, of Hb A)
IT **Glycosidation**
(of Hb A amino groups, in vivo and in vitro, sites of)
IT 50-99-7, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(Hb A nonenzymic **glycosylation** by)
IT 54651-57-9
RL: PRP (Properties)
(**glycosylation** of amino groups of, sites of)

L4 ANSWER 93 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1980:176097 CAPLUS
DN 92:176097
ED Entered STN: 12 May 1984
TI Isolation and characterization of alkali-labile oligosaccharide units from horse glycophorin
AU Fukuda, Kayoko; Tomita, Motowo; Hamada, Akira
CS Sch. Pharm. Sci., Showa Univ., Tokyo, 142, Japan
SO Journal of Biochemistry (Tokyo, Japan) (1980), 87(3), 687-93
CODEN: JOBIAO; ISSN: 0021-924X
DT Journal
LA English
CC 6-4 (General Biochemistry)
AB The O-**glycosidically** linked carbohydrate units of **glycoprotein** derived from horse erythrocyte membrane were released as reduced oligosacchrides by alkaline **borohydride** treatment. One tetrasaccharide, 2 trisaccharides, and 2 disaccharides were purified by gel filtration and **ion-exchange** chromatog. Studies employing periodate oxidation, methylation anal., and gas-liquid chromatog.-mass spectrometry revealed the following structures for these oligosaccharides; a tetrasaccharide, N-glycolylneuraminyl-(2→3)-D-galactopyranosyl-(1→3)-[N-glycolylneuraminyl-(2→6)]-D-N-acetylgalactosaminitol; trisaccharides, N-glycolylneuraminyl-(2→3)-D-galactopyranosyl-(1→3)-D-N-acetylgalactosaminitol and D-galactopyranosyl-(1→3)-[N-glycolylneuraminyl-(2→6)]-D-N-acetylgalactosaminitol; disaccharides, D-galactopyranosyl-(1→3)-D-N-acetylgalactosaminitol and N-glycolylneuraminyl-(2→3)-D-galactitol.
ST oligosaccharide structure glycophorin
IT Glycophorins
RL: BIOL (Biological study)
(oligosaccharides of, structure of)
IT Oligosaccharides
RL: PRP (Properties)
(structure of, of glycophorins)

L4 ANSWER 94 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1980:141989 CAPLUS
DN 92:141989
ED Entered STN: 12 May 1984
TI Sulfate incorporation into the major sialoglycoprotein of the MAT-B1 subline of the 13762 rat ascites mammary adenocarcinoma
AU Sherblom, Anne P.; Carraway, Kermit L.
CS Dep. Biochem., Oklahoma State Univ., Stillwater, OK, 74074, USA
SO Biochemistry (1980), 19(6), 1213-19
CODEN: BICHAW; ISSN: 0006-2960
DT Journal
LA English
CC 6-3 (General Biochemistry)
AB MAT-B1 and MAT-C1 sublines of the 13762 rat mammary adenocarcinoma differ substantially in agglutinability, mobility of lectin receptors, and xenotransplantability. When these sublines were metabolically labeled

with glucosamine-3H and sulfate-35S, both showed a predominant, 3H-labeled **glycoprotein** component, termed ASGP-1, which migrated slowly on dodecyl sulfate-polyacrylamide gels. ASGP-1 from MAT-B1 cells was also labeled by 35SO42-, but MAT-C1 ASGP-1 was not. Papain digestion followed by DEAE-cellulose chromatog. indicated that neither of the 2 sublines incorporated significant amts. of glucosamine-3H into cellular **glycosaminoglycan**. MAT-B1 ASGP-1 was isolated for anal. of its sulfated oligosaccharides by centrifugation of MAT-B1 membrane fragments in CsCl containing 4M guanidine-HCl. Refractionation on a similar gradient under isopycnic conditions yielded fractions in which increases in 35S/3H ratios, carbohydrate/protein ratios, and ratios of N-acetylglucosamine (GlcNAc), fucose, and sialic acid to N-acetygalactosamine (GalNAc) were found with increasing d. Oligosaccharides of doubly-labeled MAT-B1 ASGP-1 were released by treatment with alkaline **borohydride** and fractionated by gel filtration. Five major peaks, overlapping but not coincident, were found for 3H and 35S labels. The separated oligosaccharides were further fractionated by **ion-exchange** chromatog.
for carbohydrage anal., which showed that >50% of the oligosaccharides are neutral (based on recovery of N-acetylgalactosaminitol) and that the major component is the disaccharide containing galactose (Gal) and GalNAc. About 20% of the oligosaccharides contained sulfate, .apprx.30% contained sialic acid, and .apprx.30% had significant amts. of fucose. At least 1 oligosaccharide containing both sulfate and sialic acid (SA) was found in significant amts. (5% of total, composition GalNAc/GlcNAc/Gal/SA/Fuc 1:1:1:2:0). One of the major sulfated oligosaccharides contained sulfate and fucose (7% of total, composition GalNAc/GlcNAc/Gal/SA/Fuc 1:1:1:0:1). Tentative structural assignments can be made for the major oligosaccharides based on the compositional analyses.

ST oligosaccharide sialoglycoprotein adenocarcinoma mammary; sialoglycoprotein sulfated adenocarcinoma mammary

IT Sialoglycoproteins
RL: BIOL (Biological study)
(sulfated, of mammary adenocarcinoma, purification and properties of)

IT Oligosaccharides
RL: BIOL (Biological study)
(sulfated, of sialoglycoproteins of mammary adenocarcinoma)

IT Carcinoma
(adeno-, of mammary gland, sulfated sialoglycoproteins of sublines of)

IT Mammary gland
(neoplasm, adenocarcinoma, sulfated sialoglycoproteins of sublines of)

L4 ANSWER 95 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1980:54593 CAPLUS
DN 92:54593
ED Entered STN: 12 May 1984
TI Quantitation of oligosaccharides released by the β-elimination reaction
AU Aminoff, David; Gathmann, William D.; McLean, Charles M.; Yadomae, Toshiro
CS Dep. Intern. Med., Univ. Michigan, Ann Arbor, MI, 48109, USA
SO Analytical Biochemistry (1979), 101(1), 44-53
CODEN: ANBCA2; ISSN: 0003-2697
DT Journal
LA English
CC 9-5 (Biochemical Methods)
AB A quant. micromethod is described for monitoring the rate and extent of the β-elimination reaction as applied to O- **glycosyl** -glycoproteins utilizing alkaline tritiated **borohydride**. The procedure simultaneously labels the released oligosaccharides by their reduction to the corresponding tritiated alditols. The alkaline tritiated **borohydride** treatment also results in the labeling of the protein moiety of the **glycoprotein**, and this can be quant. separated from the carbohydrate moiety on a **cation-exchange resin**; the carbohydrate moiety is not adsorbed, whereas the

protein moiety is adsorbed and then eluted with HCl. The radioactivity in the aqueous eluate of the resin is therefore a direct measure of the amount of oligosaccharides released by the β-elimination reaction. The sensitivity of the method is dependent on the sp. activity of the tritiated NaBH4 used. The stoichiometry of the reaction was established by use of N-acetylgalactosaminyl-O-glycoproteins, demonstrating that at the completion of the β-elimination reaction: (a) none of the radioactivity attributable to the protein moiety contaminates the carbohydrate moiety, (b) all the carbohydrate components of the **glycoprotein** are found in the aqueous eluate from the cationic exchange resin, (c) all the radioactivity in this aqueous eluate is associated with the sugar known to be at the reducing end of the oligosaccharide chain bound to serine or threonine of the **glycoprotein** (in the examples discussed, N-acetylgalactosamine, and (d) there is no addnl. hydrolysis of the oligosaccharide chains during the processing.

ST **glycoprotein** detn oligosaccharide beta elimination; tritium oligosaccharide detn **glycoprotein**

IT Glycoproteins
RL: ANST (Analytical study)
(alkaline β-elimination reaction of oligosaccharides from, measurement of)

IT Oligosaccharides
RL: ANST (Analytical study)
(determination of release of, from glycoproteins by β-elimination reaction)

IT Elimination reaction
(of oligosaccharides from glycoproteins, quantitation of)

IT 1811-31-0D, O-galactosyl **glycoprotein** derivative
RL: RCT (Reactant); RACT (Reactant or reagent)
(alkaline β-elimination reaction of, measurement of)

L4 ANSWER 96 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1979:541151 CAPLUS
DN 91:141151
ED Entered STN: 12 May 1984
TI Synthesis of seven- and eight-carbon sugar derivatives from 2,3:5,6-di-O-isopropylidene-D-gulono-1,4-lactone and preparation of a new anhydro sugar
AU Srivastava, Vinai K.; Lerner, Leon M.
CS Downstate Med. Cent., State Univ. New York, Brooklyn, NY, 11203, USA
SO Journal of Organic Chemistry (1979), 44(19), 3368-73
CODEN: JOCEAH; ISSN: 0022-3263
DT Journal
LA English
CC 33-6 (Carbohydrates)
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Gulonolactone I was condensed with BrCH2CO2Et in the presence of Zn to give the expected Reformatskii product II. Treatment of II with MeOH and an acid **ion-exchange resin** afforded III, IV, and anhydro sugar V. Proof of the structure of V was based upon NMR spectroscopy and periodate oxidation The main product IV was converted to the 7,8-di-O-benzoate and 7,8-di-O-methanesulfonate. NaI elimination of the latter yielded the olefinic **glycoside** VI. IV was reduced with calcium **borohydride** to give Me 2-deoxy-4,5-O-isopropylidene-α-D-gluo-3-octulofuranoside. Treatment of IV with NaIO4 gave VII, which was reduced with Raney Ni to give the C7 sugar VIII.

ST heptulofuranosidonate; octulofuranosidonate; gulonolactone Reformatskii

bromoacetate; anhydro sugar; cyclization octulofuranosonate
IT Ring closure and formation
(during methanolysis of Et deoxyoctulofuranosonate derivative)
IT Carbohydrates, preparation
(C7, preparation of, from gulono lactone derivative)
IT Carbohydrates, preparation
(C8, preparation of, from gul lactone derivative)
IT 67642-42-6
RL: RCT (Reactant); RACT (Reactant or reagent)
(Reformatskii reaction of, with Et bromoacetate)
IT 71042-38-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and elimination reaction of, with sodium iodide)
IT 71042-33-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and methanolysis of)
IT 71042-35-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and reactions of)
IT 71042-41-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and reduction of)
IT 71042-36-9P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and structure determination of)
IT 71042-42-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and tosylation of)
IT 71042-34-7P 71042-37-0P 71042-39-2P 71042-40-5P 71042-43-8P
71042-44-9P 71042-45-0P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

L4 ANSWER 97 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1979:134629 CAPLUS
DN 90:134629
ED Entered STN: 12 May 1984
TI High-performance liquid chromatographic investigation of the amino acid, amino sugar and neutral sugar content in glycoproteins
AU Tikhomirov, M. M.; Khorlin, A. Ya.; Voelter, Wolfgang; Bauer, Hermann
CS Inst. Bioorg. Chem., Moscow, USSR
SO Journal of Chromatography (1978), 167, 197-203
CODEN: JOCRAM; ISSN: 0021-9673
DT Journal
LA English
CC 9-2 (Biochemical Methods)
AB A method for the simultaneous separation and determination of amino acids, amino
sugars, and neutral carbohydrates is described. Stepwise elution systems with Na citrate and **borate** buffers were developed for the **ion-exchange** liquid chromatog. separation of amino acids and sugars by using 8-μm particle size resins and the Stein and Moore and orcinol colorimetric method for detection. With this system, the direct quant. comparison of sugars and amino acids by liquid chromatog. becomes possible for the 1st time.
ST **glycoprotein** component liq chromatog; high performance chromatog **glycoprotein** component; amino acid sugar chromatog **glycoprotein**

IT Glycoproteins
Ovalbumins
RL: ANST (Analytical study)
(amino acids and amino sugars and neutral sugars of, high-performance liquid chromatog. of)
IT Amino acids, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination of, in presence of amino- and neutral sugars in glycoproteins,
high-performance liquid chromatog.)
IT Sugars, analysis
RL: ANT (Analyte); ANST (Analytical study)
(amino, determination of, in presence of amino acids and neutral sugars in glycoproteins, high-performance liquid chromatog.)
IT Chromatography, column and liquid
(high-performance, of amino acids and amino sugars and neutral sugars, of glycoproteins)
IT Sugars, analysis
RL: ANT (Analyte); ANST (Analytical study)
(neutral, determination of, in presence of amino acids and amino sugars in glycoproteins, high-performance liquid chromatog.)
IT 50-69-1 50-99-7, analysis 56-40-6, analysis 56-41-7, analysis 56-45-1, analysis 56-84-8, analysis 56-86-0, analysis 56-87-1, analysis 56-89-3, analysis 57-48-7, analysis 57-50-1, analysis 58-86-6, analysis 59-23-4, analysis 60-18-4, analysis 61-90-5, analysis 63-42-3 63-68-3, analysis 63-91-2, analysis 69-79-4 71-00-1, analysis 72-18-4, analysis 72-19-5, analysis 73-32-5, analysis 74-79-3, analysis 99-20-7 147-81-9 147-85-3, analysis 528-50-7 554-91-6 585-99-9 2438-80-4 3416-24-8 3458-28-4 3615-41-6 7535-00-4 7664-41-7, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination of, in glycoproteins by high-performance liquid chromatog.)

L4 ANSWER 98 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1978:610674 CAPLUS
DN 89:210674
ED Entered STN: 12 May 1984
TI Isolation and characterization of glycoproteins from canine tracheal mucus
AU Sachdev, Goverdhan P.; Fox, Owen F.; Wen, Gary; Schroeder, Terry; Elkins, Ronald C.; Carubelli, Raoul
CS Dep. Biochem. Mol. Biol., Univ. Oklahoma Health Sci. Cent., Oklahoma City, OK, USA
SO Biochimica et Biophysica Acta (1978), 536(1), 184-96
CODEN: BBACAQ; ISSN: 0006-3002
DT Journal
LA English
CC 6-3 (General Biochemistry)
AB Three homogeneous glycoproteins were isolated from reduced and S-carboxymethylated canine tracheal pouch mucus by gel filtration and **ion-exchange** chromatog. Initial fractionation was carried out on Sephadex G-200; chromatog. of the excluded Sephadex G-200 fraction on Bio-Gel A-15 m yielded 2 high-mol.-weight **glycoprotein** fractions. Following rechromatog. on the same column, the main fraction behaved as an electrophoretically homogeneous high-mol.-weight (581,600) **glycoprotein** with a high carbohydrate content (80%) and a single N-terminal amino acid (arginine). **Ion-exchange** chromatog. of the included Sephadex G-200 fraction yielded 2 electrophoretically homogeneous glycoproteins of lower mol. weight (20,800 and 24,600, resp.). A single N-terminal amino acid, glycine and alanine, resp., was detected for each **glycoprotein**. Chemical anal. of these 3 glycoproteins revealed the presence of fucose, galactose, N-acetylgalactosamine, N-acetylglucosamine, N-acetylneuraminic acid, and sulfate monoester. The high-mol.-weight **glycoprotein** had a higher

hexose, sialic acid, and sulfate content/mg of protein than did the low-mol.-weight glycoproteins. Alkaline **borohydride** treatment indicated that the majority of the carbohydrate chains of these glycoproteins are linked to the protein core through O-**glycosidic** bonds involving N-acetylgalactosamine and serine or threonine.

ST **glycoprotein** mucus trachea

IT Trachea
(glycoproteins of mucus of, isolation and properties of)

IT Mucus
(glycoproteins of, of trachea, isolation and properties of)

IT Glycoproteins
RL: BIOL (Biological study)
(of mucus, of trachea, isolation and properties of)

L4 ANSWER 99 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1978:418707 CAPLUS
DN 89:18707
ED Entered STN: 12 May 1984
TI Nature of the carbohydrate side chains and their linkage to the protein in chicken egg white ovomucin. Part II. Fractionation and characterization of the sulfated oligosaccharide chains of ovomucin
AU Kato, Akio; Hirata, Susumu; Sato, Hiroshi; Kobayashi, Kunihiko
CS Fac. Agric., Yamaguchi Univ., Yamaguchi, Japan
SO Agricultural and Biological Chemistry (1978), 42(4), 835-41
CODEN: ABCHA6; ISSN: 0002-1369
DT Journal
LA English
CC 6-4 (General Biochemistry)
AB The O-**glycosidically** linked carbohydrate units of ovomucin were released from serine and threonine in peptides as oligosaccharide chains by alkali treatment with and without **borohydride**. Two sulfated oligosaccharides were fractionated using gel filtration and **ion-exchange** chromatog. The yield of sulfated oligosaccharides released by alkali treatment was higher in the presence of **borohydride** than in the absence of **borohydride**. The sulfated oligosaccharides released by alkali treatment with **borohydride** were as follows: an oligosaccharide composed of N-acetylgalactosaminitol, galactose, N-acetylneuraminic acid, and sulfate in a molar ratio of .apprx. 1:1:1:1 and another oligosaccharide in a corresponding molar ratio of .apprx. 1:1:0.6:0.5.

ST ovomucin oligosaccharide sulfated chain

IT Ovomucins
RL: BIOL (Biological study)
(sulfated oligosaccharides of, separation and characterization of)

IT Oligosaccharides
RL: BIOL (Biological study)
(sulfated, of ovomucins, separation and characterization of)

IT 56-45-1, biological studies 72-19-5, biological studies
RL: BIOL (Biological study)
(in **glycosidic** linkage with ovomucin oligosaccharides)

L4 ANSWER 100 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1978:149012 CAPLUS
DN 88:149012
ED Entered STN: 12 May 1984
TI Biosynthesis of 5'-O-(β-D-glucopyranosyl)pyridoxine from pyridoxine in germinated rice seeds
AU Tadera, Kenjiro; Nakamura, Mahomi; Kobayashi, Akira
CS Fac. Agric., Kagoshima Univ., Kagoshima, Japan
SO Bitamin (1978), 52(1), 17-23
CODEN: BTMNA7; ISSN: 0042-7462
DT Journal
LA Japanese

CC 11-2 (Plant Biochemistry)
AB Rice seeds were germinated and cultured on 0.01-1 mM pyridoxine (I) solution I was shown by paper chromatog. to be incorporated and tranformed into some metabolites in the seedlings. The main I metabolite was a colorless powder, m.p. 167°, isolated by **ion-exchange** chromatog., gel filtration, and charcoal-absorption chromatog. of the seedling extract The UV, IR, and NMR spectral data implied a hexose was bound to the 4- or 5-hydroxymethyl group of I. Acid hydrolysis of the compound gave I and glucose. The glucose was bound to the 5-hydroxymethyl group as shown by the pos. reaction of the compound toward diazotized sulfanilic acid and the neg. reaction to the same reagent in the presence of **borate**. The configuration of the bound glucose was proved to be β- from hydrolysis with α- and β-glucosidases. The released sugar was oxidized to gluconic acid by D-glucose oxidase, indicating that it was D-glucose. Conclusively, the isolated I-derivative was identified as 5'-O-(β-D-glucopyranosyl)pyroxine.
ST pyridoxine **glycoside** formation rice
IT Rice
(glucopyranosyl pyridoxine formation by)
IT 63245-12-5
RL: FORM (Formation, nonpreparative)
(formation of, in rice)
IT 65-23-6
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(metabolism of, in rice)

L4 ANSWER 101 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1978:117216 CAPLUS
DN 88:117216
ED Entered STN: 12 May 1984
TI Microdetermination of monosaccharides in glycoproteins. I. Electrophoretic methods
AU Tomana, Milan; Niedermeier, William; Spivey, Cooper; Gerard, James
CS Comput. Cent., Univ. Alabama, Birmingham, AL, USA
SO Microchemical Journal (1978), 23(1), 93-103
CODEN: MICJAN; ISSN: 0026-265X
DT Journal
LA English
CC 9-3 (Biochemical Methods)
Section cross-reference(s): 15
AB A high-voltage radioelectrophoretic method, based on the separation of 3H-labeled monosaccharides, is described for the anal. of the carbohydrate portion of Igs. The procedure is similar to that of S. Takasaki and A. J. Kobate and uses specific 14C-labeled monosaccharides as internal stds. A preparation of secretory IgA of human colostrum was studied. Sialic acid, neutral sugars, and amino hexoses were liberated by hydrolyses under various conditions. Monosaccharides then were separated from peptides by **ion-exchange** chromatog. before reduction of the sugars with NaB3H4 and high-voltage electrophoresis on Whatman Number 3 filter paper at 2°. Sialic acid was separated from contaminants in **borate** buffer (pH 7) at 48 V/cm for 1 h. Neutral sugars were run for 3 h at 42 V/cm in **borate** buffer (pH 9.5), and amino hexoses for 3 h at 48 V/cm in **borate** buffer (pH 7.6). Radioactive spots were detected by scanning for 14C-β emission; paper segments were eluted, nd 14C and 3H activities were counted. Sugar concns. were computed from the difference in the ratios of 3H/14C in a 14C-labeled standard solution and in a hydrolyzed **glycoprotein** sample containing the same stds. Two computer programs were used, the 1st to correct data for β-energy spillover in the scintillation counter and the 2nd to fit the corrected data to a sequence of normal distribution functions and to calculate the sugar concns. in the unknowns. The following components were found in secretory IgA by this method: glucosamine (free base) 17.92; mannose plus fucose 21.29;

galactose 9.75; and sialic acid 2.22 nmol/50 μg protein. Relative standard deviations were 2.8-4.0%.

ST **glycoprotein** monosaccharide detn; electrophoresis monosaccharide **glycoprotein**; IgA secretory monosaccharide detn; sugar detn **glycoprotein**; radioassay monosaccharide **glycoprotein**

IT Carbohydrates, analysis
Monosaccharides
Sialic acids
RL: ANT (Analyte); ANST (Analytical study)
(determination of, in glycoproteins by radioelectrophoresis)

IT Computer program
(for liquid scintillation counting data correction and sugars determination in glycoproteins, in radioelectrophoresis)

IT Glycoproteins
RL: AMX (Analytical matrix); ANST (Analytical study)
(monosaccharides determination in, by radioelectrophoresis)

IT Colostrum
(secretory IgA of, monosaccharides of, radioelectrophoresis of)

IT Immunoglobulins
RL: ANST (Analytical study)
(A, secretory, of colostrum, monosaccharides determination in, by radioelectrophoresis)

IT Hexoses
RL: ANT (Analyte); ANST (Analytical study)
(amino, determination of, in glycoproteins by radioelectrophoresis)

IT Scintillation
(counting, liquid, data correction in, computer program for, for radioelectrophoresis)

IT Electrophoresis and Ionophoresis
(high-voltage, radio-, of monosaccharides of glycoproteins)

IT Chromatography, column and liquid
(ion-exchange, in monosaccharides separation from peptides, in **glycoprotein** carbohydrate anal.)

IT Sugars, analysis
RL: ANT (Analyte); ANST (Analytical study)
(neutral, determination of, in glycoproteins by radioelectrophoresis)

IT 10028-17-8, analysis 14762-75-5, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination of, in monosaccharides of glycoproteins, radioelectrophoresis in relation to)

IT 50-99-7, analysis 59-23-4, analysis 3416-24-8 3458-28-4 3615-37-0 7535-00-4
RL: ANT (Analyte); ANST (Analytical study)
(determination of, in secretory IgA by radioelectrophoresis)

L4 ANSWER 102 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1977:473362 CAPLUS
DN 87:73362
ED Entered STN: 12 May 1984
TI Creatine kinase isoenzyme subunit M antibodies
IN Wuerzburg, Uwe; Hennrich, Norbert; Orth, Hans Dieter; Lang, Hermann
PA Merck Patent G.m.b.H., Fed. Rep. Ger.
SO Ger. Offen., 31 pp.
CODEN: GWXXBX
DT Patent
LA German
IC A61K039-00
CC 63-3 (Pharmaceuticals)
Section cross-reference(s): 15
FAN.CNT 2

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

PI	DE 2548962	A1	19770512	DE 1975-2548962	19751103
	DE 2548962	C2	19851121		
	CA 1062609	A1	19790918	CA 1976-264720	19761102
	US 4237044	A	19801202	US 1979-37191	19790508
PRAI	DE 1975-2548962		19751103		
	DE 1975-2548963		19751103		
	US 1976-737264		19761101		

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
DE 2548962	IC	A61K039-00

AB Antibodies against the subunits M of creatine kinase (CK) [9001-15-4] isoenzymes, are produced and are used for medical diagnosis and in the treatment of myocardial infarction. Animals are inoculated with activated CK isoenzyme MM, and the antibodies, which are specific for the M subunits, are obtained by customary procedures. For example, frozen human muscle tissues were homogenized with a mixture, of Tris-HCl buffer, KCl, EDTA and dithioerythritol. The protein content of the homogenate was separated by (NH4)2SO4 fractionation, and purified by **ion exchange** chromatog. and repeated precipitation The CK isoenzyme MM solution was activated by mercaptoethanol dialysis. The enzyme solution was clarified by ultracentrifugation, and emulsified with complete Freund adjuvant. Goats were inoculated with the antigen preparation and the animals were bled. The obtained antisera were mixed with a 3% sheep serum **albumin** base in **borate** buffer solution and freeze-dried. The mol. wts. of the antibodies were estimated between 160,000 and 180,000.

ST creatine kinase isoenzyme M antibody; heart infarction creatine kinase antibody

IT Antibodies
RL: PREP (Preparation)
(to creatine kinase isoenzyme subunit M, preparation and activity of, for myocardial infarction treatment)

IT Heart, disease or disorder
(infarction, antibodies to creatine kinase isoenzymes subunit M in treatment of)

IT 9001-15-4P
RL: PREP (Preparation)
(isoenzymes, antibodies to subunit M of, preparation and activity of, for myocardial infarction treatment)

L4 ANSWER 103 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1977:101137 CAPLUS
DN 86:101137
ED Entered STN: 12 May 1984
TI Interaction between serum **albumin** and mercaptoundecahydrododecaborate ion (an agent for boron-neutron capture therapy of brain tumors). I. Introductory remarks and preliminary experiments
AU Nakagawa, Toshio; Nagai, Tadashi
CS Shionogi Res. Lab., Shionogi and Co., Ltd., Osaka, Japan
SO Chemical & Pharmaceutical Bulletin (1976), 24(12), 2934-41
CODEN: CPBTAL; ISSN: 0009-2363
DT Journal
LA English
CC 1-13 (Pharmacodynamics)
AB The interaction between bovine serum **albumin** and dodecahydrododecaborate (B12H122-) or mercaptoundecahydrododecaborate (B12H11SH2-) anion has been investigated by equilibrium dialysis, equilibrium distribution in and out of a Sephadex gel, gel-filtration-, **ion-exchange**-, and **ion**-retardation-chromatog. Both **borates** were strongly bound to the **albumin** through ion-pair formation with cationic sites on the protein mols. This binding

of ionic character could be readily broken up by **ion-exchange** or **ion**-retardation chromatog. The latter **borate** showed, in addition, another mode of binding which was resistant against **ion-exchange** and **ion**-retardation resins. This binding of covalent character was due to the formation of disulfide linkage between the **boron** cage of B12H11SH2- and the **albumin**.

ST mercaptoundecahydrododecaborate binding **albumin**; borate deriv binding **albumin**

IT Albumins, blood serum
RL: BIOL (Biological study)
(borate derivs. complexing with)

IT 12356-13-7
RL: BIOL (Biological study)
(complexing of, with **albumin**)

IT 12294-22-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and **albumin** binding of)

L4 ANSWER 104 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1976:160881 CAPLUS
DN 84:160881
ED Entered STN: 12 May 1984
TI Characterization of the oligosaccharide units of the bovine erythrocyte membrane **glycoprotein**
AU Emerson, William A.; Kornfeld, Stuart
CS Sch. Med., Washington Univ., St. Louis, MO, USA
SO Biochemistry (1976), 15(8), 1697-703
CODEN: BICHAW; ISSN: 0006-2960
DT Journal
LA English
CC 6-4 (General Biochemistry)

AB The major **glycoprotein** of the bovine erythrocyte membrane was purified by extraction of the ghosts with Li 3,5-diiodosalicylate followed by PhOH-H2O extraction and acidification. The **glycoprotein** contained 20% protein and 80% carbohydrate by weight and gave a single band on Na dodecyl sulfate-polyacrylamide gels with an estimated mol. weight of 230,000 daltons. The carbohydrate composition of the **glycoprotein** was determined to be (in residues relative to sialic acid): sialic acid, 1.0; fucose, <0.01; mannose, 0.1; galactose, 3.3; N-acetylgalactosamine, 0.9; and N-acetylglucosamine, 2.4. Pronase digestion of the isolated **glycoprotein** followed by Sephadex G-75 gel filtration resulted in the separation of a small pool of glycopeptides (pool III), which included all of the mannose-containing glycopeptides, from the bulk of the glycopeptide material which was in the void fractions of the column (pool I). Alkaline **borohydride** treatment released >95% of the oligosaccharide units in pool I and .apprx.30% of the oligosaccharide units in pool III. These oligosaccharides were isolated by gel filtration and **ion-exchange** chromatog. The oligosaccharides released from pool I had mol. wts. of 1100-400 daltons and contained sialic acid, galactose, and N-acetylglucosamine in molar ratios of 0.5-1:3:2 as well as a partial residue of N-acetylgalactosaminitol. The oligosaccharides released from pool III by alkali had mol. wts. of 1300-600 daltons and contained sialic acid, galactose, N-acetylglucosamine, N-acetylgalactosamine, and N-acetylgalactosaminitol in molar ratios of 1-2:2:1:1:1. These data indicate that the majority of the oligosaccharide units of the bovine erythrocyte **glycoprotein** are linked O-**glycosidically** to the peptide backbone of the mol.

ST erythrocyte membrane sialoglycoprotein oligosaccharide

IT Cell membrane
(erythrocyte, sialogycoproteins of, oligoasccharides of)

IT Sialoglycoproteins
RL: BIOL (Biological study)

(of erythrocyte membrane, composition of oligosaccharide moiety of)
IT Oligosaccharides
RL: BIOL (Biological study)
(of sialoglycoproteins, of erythrocyte membranes, composition of)
IT Erythrocyte
(sialoglycoprotein of membranes of, composition of oligosaccharides of)

L4 ANSWER 105 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1975:166897 CAPLUS
DN 82:166897
ED Entered STN: 12 May 1984
TI Simultaneous assay of neutral sugars and amino sugars by an automatic sugar analyzer. Applications to glycoproteins
AU Keilich, Gunda; Ziegler, Dietmar
CS Inst. Biochem. II, Univ. Heidelberg, Heidelberg, Fed. Rep. Ger.
SO Hoppe-Seyler's Zeitschrift fuer Physiologische Chemie (1975), 356(4), 417-23
CODEN: HSZPAZ; ISSN: 0018-4888
DT Journal
LA English
CC 9-2 (Biochemical Methods)
AB A method was described for the simultaneous assay of neutral sugars and amino sugars commonly found in glycoproteins. The automatic sugar analyzer used for the determination was based on the **ion-exchange** chromatog. of sugar-**borate** complexes on a strong anion-**exchange resin.** The sugars were identified with the orcinol-H2SO4 reagent. Whereas <40 nmole mannose, fucose, galactose, glucose, xylose, or arabinose was sufficient for anal., at least 200 nmole mannosamine, glucosamine, or galactosamine was required; acidic monosaccharides could not be determined The technique of sugar anal. was applied to structural studies on natural compds., e.g. the monosaccharide composition of lichenan and the carbohydrate moiety of the glycoproteins ovo mucoid and Collocalia mucoid.
ST **glycoprotein** sugar automated detn; app ion exchange chromatog sugar
IT Ovomucoids
RL: AMX (Analytical matrix); ANST (Analytical study)
(carbohydrates determination in, automated)
IT Mucoproteins
RL: AMX (Analytical matrix); ANST (Analytical study)
(carbohydrates determination in, automated, of Collocalia)
IT Sugars, analysis
RL: ANT (Analyte); ANST (Analytical study)
(determination of, in glycoproteins, automated)
IT Glycoproteins
RL: AMX (Analytical matrix); ANST (Analytical study)
(sugars determination in, automated)
IT 1402-10-4
RL: AMX (Analytical matrix); ANST (Analytical study)
(monosaccharides determination in, automated)

L4 ANSWER 106 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1975:150898 CAPLUS
DN 82:150898
ED Entered STN: 12 May 1984
TI Heterogeneity of the carbohydrate chains of sulfated bronchial glycoproteins isolated from a patient suffering from cystic fibrosis
AU Roussel, Philippe; Lamblin, Genevieve; Degand, Pierre; Walker-Nasir, Evelyne; Jeanloz, Roger W.
CS Unite Proteines, INSERM, Lille, Fr.
SO Journal of Biological Chemistry (1975), 250(6), 2114-22
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal

LA English
CC 6-3 (General Biochemistry)
Section cross-reference(s): 14
AB Sulfated glycoproteins having blood group H activity were isolated from the sputum of a child suffering from cystic fibrosis, by reduction of the fibrillar mucus, chromatog. on ECTEOLA-cellulose, and gel filtration on Sepharose 4B. The sulfated glycoproteins were degraded with alkaline **borohydride**, and the degradation products were fractionated by chromatog. on **ion-exchange** resins and by gel filtration. The carbohydrate chains thus obtained had a wide heterogeneity with regard to acidity and mol. size. The neutral chains contained blood group H active oligosaccharides and incomplete chains as short as 1 residue of 2-acetamido-2-deoxy-D-galactose. The min. size of the neuraminic acid-containing chains was less than that of the sulfated chains, which increased with the degree of sulfation. The sulfate groups were linked at C-6 at the D-galactose residues.
ST **glycoprotein** sulfated cystic fibrosis; bronchi sulfated **glycoprotein**
IT Bronchi
(sulfated **glycoprotein** of, in cystic fibrosis)
IT Cystic fibrosis
(sulfated glycoproteins of bronchi in)
IT Glycoproteins
RL: BIOL (Biological study)
(sulfated, of bronchi in cystic fibrosis)

L4 ANSWER 107 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1973:430260 CAPLUS
DN 79:30260
ED Entered STN: 12 May 1984
TI Partial characterization of carbohydrate residues of serum glycoproteins in neoplastic disease
AU Sobocinski, P. Z.; Hartley, K. M.; Evans, A. S.; Canterbury, W. J.
CS Armed Forces Radiobiol. Res. Inst., Bethesda, MD, USA
SO U. S. Nat. Tech. Inform. Serv., AD Rep. (1972), No. 756621, 23 pp.
Avail.: NTIS
From: Govt. Rep. Announce. (U. S.) 1973, 73(8), 41
CODEN: XADRCH
DT Report
LA English
CC 14-10 (Mammalian Pathological Biochemistry)
AB The objective of this investigation was primarily to establish that the apparent increase in serum fucose levels in patients with malignant tumors is real and to obtain data as to its source. Carbohydrate residues (L-fucose, D-mannose, D-galactose) were estimated by **borate ion-exchange** chromatog. after mild acid hydrolysis of serum proteins. Data are presented which confirm reported increases in levels of serum fucose in certain malignancies and indicate that these increases are due to quant. alterations in specific serum glycoproteins observed in the **glycoprotein** profile associated with cancer. Values for serum fucose levels in pathol. and nonpathol. sera obtained by various anal. methods are presented and discussed.
ST neoplasm serum **glycoprotein** carbohydrate
IT Cancer
(**glycoprotein** carbohydrates in blood serum in)
IT Glycoproteins
RL: BIOL (Biological study)
(of blood serum, carbohydrates of, in cancer)
IT Carbohydrates, biological studies
RL: BIOL (Biological study)
(of glycoproteins, in blood serum in cancer)

L4 ANSWER 108 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN

AN 1973:428567 CAPLUS
DN 79:28567
ED Entered STN: 12 May 1984
TI Glycoproteins from bovine duodenal mucosa
AU Cetta, G.; Pallavicini, G.; Calatroni, A.; Castellani, A. A.
CS Fac. Sci., Univ. Pavia, Pavia, Italy
SO Italian Journal of Biochemistry (1972), 21(5-6), 275-88
CODEN: IJBIAC; ISSN: 0021-2938
DT Journal
LA English
CC 6-3 (General Biochemistry)
AB Glycoproteins were isolated from bovine duodenal mucosa and fractionated by **ion-exchange** chromatog. on DEAE Sephadex A-25. Two fractions, B1 and B2, were eluted with 0.3 M and 3.5 M NaCl solns., which exhibited a single band on cellulose acetate electrophoresis at various pH values. For B1 the molar ratio of total hexosamines to hexoses and of galactosamine (I) to glucosamine (II) were close to 1.0. The ratio of SO42- to I was 0.2, and that of fucose + sialic acid to hexosamines was 0.5. Fraction B2 composition was very similar to B1 but showed increased amts. of SO42- and a higher I to II molar ratio. Treatment with **borohydride** in alkali followed by analyses for amino acids, hexosamines, and hexosaminitols suggested that galactosaminylthreonine is the main protein-polysaccharide linkage in the isolated glycoproteins.
ST **glycoprotein** structure intestine
IT Intestine, composition
(duodenum, glycoproteins of mucosa of)
IT Glycoproteins
RL: PROC (Process)
(of intestine mucosa, characterization of)

L4 ANSWER 109 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1972:150242 CAPLUS
DN 76:150242
ED Entered STN: 12 May 1984
TI Carbohydrate units of thyroglobulin. Structure of the mannose-N-acetylglucosamine unit (unit A) of the human and calf proteins
AU Arima, Terukatsu; Spiro, Robert G.
CS Dep. Biol. Chem., Harvard Med. Sch., Boston, MA, USA
SO Journal of Biological Chemistry (1972), 247(6), 1836-48
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English
CC 6 (General Biochemistry)
Section cross-reference(s): 33, 34
GI For diagram(s), see printed CA Issue.
AB An investigation of the structure and peptide attachment of the mannose-ν-acetylglucosamine unit (unit A) from human and calf thyroglobulin was carried out on glycopeptides containing large (8-10 mannose plus 2 glucosamine residues), small (5-6 mannose plus 2 glucosamine residues), and an oligosaccharide fraction (8 mannose plus 2 glucosamine residues). All mannose residues were released by α-mannosidase, after which 1 ν-acetylglucosamine was removed by β-ν-acetylglucosaminidase. This permitted the isolation from the glycopeptides of 2 - acetamido - 4 - o - (2 - acetamido - 2 - deoxy β - D - glucopyranosyl) - 1 - ν - β - L - aspartyl - 2 - deoxy - β - D - glucopyranosylamine and 2 - acetamido - 1 - ν - β - L - aspartyl - 2 - deoxy -β - D - glucopyranosylamine, which gave aspartic acid plus di-ν-acetylchitobiose or ν-acetylglucosamine, resp., by the action of **glycosyl** asparaginase. Incubation of the unit A oligosaccharide with α-mannosidase resulted in the production of a di-ν-acetylglucosamine disaccharide in high yield which was identical with di-ν-acetylchitobiose. Serial periodate oxidation of the glycopeptides

caused destruction of all but 1 glucosamine residue. Glycerol was the only alc. released during these degradations. Periodate oxidation and Na **borohydride** reduction yielded 1 residue of xylosaminitol. Methylation of the glycopeptides by the method of Hakamori yielded tetra- and di-o-methyl mannose ethers from glycopeptides with small carbohydrate units, while tetra-, tri-, and di-o-methyl ethers were obtained from the glycopeptides with large carbohydrate units. All glycopeptides yielded only 1 o-methyl ether of v-methylglucosamine, identified by **ion exchange** chromatog. to be 3,6-di-o-methyl-N-methylglucosamine. The results of these studies suggest structure I for carbohydrate unit A. The smallest unit found was a tightly branched structure containing 5 mannose residues, and the larger units are believed to contain addnl. mannose residues, designated as (Man)x linked to the terminal residues of the 3 chains by α1-2 bonds. No significant species variations were observed between the calf and human proteins.

ST thyroglobulin carbohydrate component

IT 9049-79-0
RL: PRP (Properties)
(structure of)

L4 ANSWER 110 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1972:46416 CAPLUS
DN 76:46416
ED Entered STN: 12 May 1984
TI Automated analysis of neutral monosaccharides in glycoproteins and polysaccharides
AU Hough, L.; Jones, J. V. S.; Wusteman, P.
CS Queen Elizabeth Coll., Univ. London, London, UK
SO Carbohydrate Research (1972), 21(1), 9-17
CODEN: CRBRAT; ISSN: 0008-6215
DT Journal
LA English
CC 33 (Carbohydrates)
Section cross-reference(s): 67, 34
AB An improved method for the automated, quant. anal. of glycoproteins and polysaccharides for neutral monosaccharide components was developed, based on the **ion-exchange** chromatog. at pH 7 of sugar-**borate** complexes. The destruction of sugars during acid hydrolysis was investigated, and a variety of methods for the neutralization of hydrolyzates were evaluated.
ST analysis automated saccharide **glycoprotein**
IT Glycoproteins
Polysaccharides, analysis
RL: RCT (Reactant); RACT (Reactant or reagent)
(automated anal. of neutral monosaccharides in, based on **ion-exchange** chromatog. of sugar-**borate** complexes)
IT Sugars, analysis
RL: ANST (Analytical study)
(automated, based on **ion-exchange** chromatog. of **borate** complexes)
IT Saccharides
RL: RCT (Reactant); RACT (Reactant or reagent)
(mono-, automated anal. of neutral, in glycoproteins and polysaccharides)

L4 ANSWER 111 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1971:94511 CAPLUS
DN 74:94511
ED Entered STN: 12 May 1984
TI Identification of the hexosamine linked to hydroxyamino acids in the protein-polysaccharide linkages
AU Balduini, C.; Pallavicini, G.; Castellani, Alessandro A.

CS Fac. Sci., Univ. Pavia, Pavia, Italy
SO Italian Journal of Biochemistry (1970), 19(4), 253-61
CODEN: IJBIAC; ISSN: 0021-2938
DT Journal
LA English
CC 2 (General Biochemistry)
AB The protein-polysaccharide linkages present in keratan sulfate (KS)-peptide from human costal cartilage and dove crop and dog submaxillary gland glycoproteins were studied. The samples were treated with alkaline **borohydride** and the hexosaminitols formed by this reaction were identified by **ion-exchange** chromatog. using an automatic amino acid analyzer. Galactosaminitol was isolated after the KS-peptide treatment and it was demonstrated that the most important linkage involves N-acetylgalactosamine and threonine. Serine however is also linked to the polysaccharide chain. In glycopeptides from dove crop and dog submaxillary glands, the same type of linkage is present. Also, in these macromols., hydroxy amino acids are linked by a **glycosidic** linkage to N-acetylgalactosamine.
ST protein polysaccharides **glycosides** linkage
IT Proteins
RL: BIOL (Biological study)
(of glycoproteins, polysaccharide linkage with, structure of)
IT Glycopeptides
RL: BIOL (Biological study)
(peptide linkage structure with polysaccharides of)
IT Glycoproteins
RL: BIOL (Biological study)
(polysaccharide linkage structure with proteins of)
IT Polysaccharides, properties
RL: PRP (Properties)
(protein linkage with, structure of, of glycoproteins)
IT 56-45-1, properties 72-19-5, properties 1811-31-0
RL: PRP (Properties)
(of glycoproteins, in polysaccharide linkage with proteins)
IT 9056-36-4, Keratan sulfate
(polysaccharide linkage structure with proteins of, acetylgalactosamine and threonine in)

L4 ANSWER 112 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1970:495485 CAPLUS
DN 73:95485
ED Entered STN: 12 May 1984
TI Isolation and characterization of rapidly labeled high molecular RNA from freely suspended callus cells of parsley (Petroselinum sativum)
AU Seitz, U.; Richter, Gerd
CS Inst. Biol., Univ. Tuebingen, Tuebingen, Fed. Rep. Ger.
SO Planta (1970), 92, 309-26
CODEN: PLANAB; ISSN: 0032-0935
DT Journal
LA German
CC 7 (Plant Biochemistry)
AB Cells of callus tissue from roots of parsley were collected 5-9 days after transfer so that they were in the stage of rapid cell multiplication. Cultures were grown in darkness with continuous aeration on a medium that contained sucrose, amino acids, accessory substances, and minerals. Cells previously held 12 hr on a P-free medium were placed 10-30 min in a 32PO43- medium for expts. in rapid labeling or also held 2 hr on a P-free medium prior to a 36-hr exposure to 32PO43-. Total nucleic acids were extracted into phenol, then into buffer at pH 7.5-9, and precipitated with EtOH. The
precipitate was dissolved in Tris-**borate**-EDTA buffer followed by concentration of 2 ml by dialysis against 70% dextran for gel electrophoresis or in phosphate buffer pH 6.7 containing 0.1M NaCl for column chromatog. on

methylated **albumin** on diatomaceous earth (MAK). The MAK columns were eluted with solns. of 0.1M to 1.5M NaCl in 0.05M phosphate buffer pH 6.7. The eluates were collected in 5-ml portions in each of which the absorbance at 260 mμ and the 32P by scintillation counting were measured. High mol. weight RNAs (sedimentation indices >18) were isolated from the solns. of total RNA in phosphate buffer at pH 6.7 by the procedure of Brawermann, et al. (1962). Portions of th solns. thus obtained were treated with serum **albumin** as carrier substance and precipitated by making the solution to 5% with HClO4. The precipitate was hydrolyzed in 0.5N KOH and the unhydrolyzed material was precipitated with 70% HClO4. Portions of the solns. of the DNA purified on MAK columns were treated with unlabeled yeast DNA and precipitated with EtOH at -18°. The precipitate was hydrolyzed with DNase, then adjusted to pH 9 and incubated with phosphodiesterase. Solns. of the nucleotides from either hydrolysis were neutralized and **chromatographed** on Dowex 1 + 2 **ion exchange resin** Cl form and eluted with 0.0 to 0.1N HCl. In each of these fractions the absorbance at 254 mμ was determined and the 32P was determined by counting with an end-window tube. For electrophoresis the RNA solns. were stained with bromphenol blue, underlayered with TBE buffer pH 8.3, and applied to small tubes of acrylamide gel containing acrylamide, methylenebisacrylamide, concentrated TBE buffer, and NH4 pesulfate. For 5 min 2.5 mA and then for 20 min 5 mA was passed through each tube after which the contents were pushed out and fixed in 1M HOAc. The RNAs of high mol. weight from Brawermann procedure in 0.05M phosphate buffer, pH 6.7 were centrifuged in a sucrose gradient. For the centrifugates the absorbance at 260 mμ and the 32P by scintillation were determined Rapid labeling appeared to be predominantly of RNA of high mol. weight, being found in the eluate fractions from the MAK columns after the ribosomal RNA,s from which it differed in having more AMP than GMP. Separation of these 2 RNAs on the sucrose gradients and by polyacrylamide electrophoresis indicated a sedimentation coefficient of .apprx.32S.

ST RNA parsley fast labeled; parsley fast labeled RNA; callus cell RNA parsley

IT Nucleic acids, ribo-
RL: BIOL (Biological study)
(of parsley, rapidly-labeled)

IT Parsley
(ribonucleic acid of callus cells of)

L4 ANSWER 113 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1969:64989 CAPLUS
DN 70:64989
ED Entered STN: 12 May 1984
TI Determination of hexosaminitols by ion-exchange chromatography and its application to alkali-labile **glycosidic** linkages in glycoproteins
AU Weber, Peter; Winzler, Richard J.
CS State Univ. of New York, Buffalo, NY, USA
SO Archives of Biochemistry and Biophysics (1969), 129(2), 534-8
CODEN: ABBIA4; ISSN: 0003-9861
DT Journal
LA English
CC 6 (Biochemical Methods)
AB A procedure is described for the quant. determination of galactosaminitol, glucosaminitol, and their parent hexosamines by used of the automatic amino acid analyzer using **cation-exchange** chromatog. with a **borate**-citrate buffer system. The method was used to study the conversion of hexosamines to hexosaminitols in several glycoproteins by alkaline **borohydride** under different conditions. The amount of galactosamine involved in the O-**glycosidic** linkage to serine and threonine in different mucins was variable. In bovine,

canine, and porcine submaxillary mucin, 90-96% of the galactosamine lost during alkaline **borohydride** treatment was recovered as galactosaminitol.

ST galactosaminitol chromatog; chromatog galactosaminitol; glycoproteins structure detn; structure glycoproteins detn

IT Glycoproteins
RL: ANST (Analytical study)
(hexosamine of, conversion to hexosamintols)

IT Mucins
RL: ANST (Analytical study)
(hexosamines in)

IT Hexosamines
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactions of, with alkaline borohydride in glycoproteins)

IT 2351-14-6 3416-24-8 7535-00-4 23018-80-6
RL: ANT (Analyte); ANST (Analytical study)
(determination of)

L4 ANSWER 114 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1966:85843 CAPLUS
DN 64:85843
OREF 64:16193h,16194a-c
ED Entered STN: 22 Apr 2001
TI Isolation and characterization of lipopolysaccharides containing 6-O-methyl-D-glucose from Mycobacterium species
AU Lee, Yuan Chuan
CS Univ. of California, Berkeley
SO Journal of Biological Chemistry (1966), 241(8), 1899-908
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English
CC 56 (General Biochemistry)
AB A polysaccharide, composed of 6-O-methyl-D-glucose and D-glucose in a molar ratio of 6:4, was isolated from the watersol. portion of the deacylated crude lipids of M. phlei and M. tuberculosis. The polysaccharide was purified by gel filtration, **ion exchange**, and **borate** complex formation, and had a mol. weight of about 3000 and [α]22D + 160° (c 0.1, water). Methylation analysis of the polysaccharide showed that it had a branched structure with an average chain length of 8-9 hexose units. The major type of **glycosidic** linkage was a-(1 → 4), and the branching involved position 3 of one of the 6-O-methyl-D-glucose residues. Oligosaccharides were prepared by acetolysis of the polysaccharide, and were purified by paper chromatography. Di-, tri-, tetra-, penta-, hexa-, and heptasaccharides of α-(1 → 4)-linked 6-O-methyl-D-glucose, in addition to maltose and maltotriose, were isolated. The only heterooligosaccharide found was O-α-D-glucopyranosyl-(1 → 3)-6-O-methyl-D-glucose. β-Amylase had no effect on the polysaccharide, whereas α-amylase liberated about 20% of the total carbohydrate, mainly as D-glucose and maltose. Limited amylolysis yielded D-glucose, maltose, and unidentified oligosaccharides containing D-glucose. Intact lipopolysaccharide, containing 2-3 moles of ester-linked fatty acid, was prepared from a 70% EtOH extract of M. phlei. The lipopolysaccharide was soluble in water and in 2:1 $CHCl_3$-MeOH but was only slightly soluble in MeOH or EtOH. Proton magnetic resonance, ir, and uv spectra were consistent with the results obtained.

IT Lipopolysaccharides
(6-O-methyl-D-glucose-containing, of Mycobacterium phlei and M. tuberculosis)

IT Mycobacterium
(phlei and tuberculosis BCG, 6-O-methyl-D-glucose-containing lipopolysaccharides from)

IT 2461-70-3, D-Glucose, 6-O-methyl-

(lipopolysaccharides containing, from Mycobacterium phlei and M. tuberculosis)

L4 ANSWER 115 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1966:12933 CAPLUS
DN 64:12933
OREF 64:2400g-h,2401a
ED Entered STN: 22 Apr 2001
TI An ion-exchange column chromatographic method for the separation and quantitative analysis of neutral monosaccharides
AU Walborg, Earl F., Jr.; Christensson, Lena; Gardell, Sven
CS Univ. Lund, Swed.
SO Analytical Biochemistry (1965), 13(2), 177-85
CODEN: ANBCA2; ISSN: 0003-2697
DT Journal
LA English
CC 60 (Biochemical Methods)
AB A method is described for the separation and quantitation of micromole quantities of many of the naturally occurring neutral monosaccharides. This method is based on the **ion-exchange chromatography** of the sugar-**borate** complexes on a strong anion-**exchange resin**. The utilization of a boric acid-glycerol buffer has allowed the chromatographic separation to be performed at pH 6.8 and at an elevated temperature This system possesses a high degree of resolution and permits neutral monosaccharides to be quantitated with a precison of ±5% or better in the case of some monosaccharides.
IT Sugars
(analysis, determination of glucose and fructose)
IT Amino acids
(chromatography of)
IT 56-41-7, Alanine 56-45-1, Serine 56-84-8, Aspartic acid 56-86-0, Glutamic acid 56-87-1, Lysine 56-89-3, Cystine 60-18-4, Tyrosine 61-90-5, Leucine 63-68-3, Methionine 63-91-2, Alanine, phenyl- 71-00-1, Histidine 72-18-4, Valine 72-19-5, Threonine
(chromatography of)
IT 50-69-1, Ribose 58-86-6, Xylose 59-23-4, Galactose 65-42-9, Lyxose 147-81-9, Arabinose 2438-80-4, Fucose 3615-41-6, Rhamnose
(determination of)
IT 3458-28-4, Mannose
(determination of, in **albumin**)

L4 ANSWER 116 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1965:75667 CAPLUS
DN 62:75667
OREF 62:13438g-h,13439a-d
ED Entered STN: 22 Apr 2001
TI Substrate specificity and cofactors of hog kidney diamine oxidase
AU Goryachenkova, E. V.; Ershova, E. A.
CS Inst. Radiation and Phys.-Chem. Biol., Moscow
SO Biokhimiya (Moscow) (1965), 30(1), 165-73
CODEN: BIOHAO; ISSN: 0320-9725
DT Journal
LA Russian
CC 57 (Enzymes)
AB A homogenate of fresh hog kidney was extracted with 1% NaCl, the extract 0.6 saturated with (NH4)2SO4, and the protein precipitate heated in a phosphate buffer at pH 6.8 at 60°. The product was purified by 3 independent methods: (a) by column electrophoresis on cellulose in 0.05M phosphate buffer at pH 7.2-7.4 at a potential gradient of 5 to 6 v./cm.; (b) by **ion-exchange chromatography** on DEAE-cellulose in 0.005M **borate** buffer at pH 8.0 or 8.6, using a gradient of Cl ions; (c)

by fractionation on an alumina column. A 200 to 400-fold purification was achieved by methods (a) and (b), and a 1000- fold purification by method (c). When the fractions obtained by (a) were tested for diamine oxidase (I) and histaminase (II) activities by the colorimetric method measuring the amount of oxidized putrescine and histamine, resp., diamine oxidase and histaminase activities were found in the same fractions. When determining the activity according to the decolorization of an indigo disulfonate solution the fractions had only histaminase activity. The same picture was obtained when the preparation obtained by (b) was tested by the same methods. The authors conclude that I and II are identical. The indigo disulfonate assay for activity does not determine reliably the amount of putrescine oxidized by the purified fractions and it is not adequate for activity measurements. The content of FAD (III) in the purified fractions of I was examined Since the amount of III decreased to zero with increasing purity of the enzyme preparation, III is obviously not a prosthetic group of I. The activity of I was inhibited from 50 to 70% by 10-3-10-2M diethyldithiocarbamate (IV) and 8-hydroxyquinoline. When the excess of IV was removed by dialysis or gel filtration on Sephadex G-25, the activity of I could be restored partly. The addition of Cu++ or Fe++ (concns. 10-7 to 10-6M) to the dialyzate did not raise the activity. Higher concs.of Cu++ or Fe++ (10-4-10-5Mgr;)resulted in addnl. inhibition of the activity. The activity of I inhibited by IV could be restored when I was dialyzed against a buffer solution which was 2 + 10-5M in Cu++ and 10-6M in pyridoxal phosphate (V). The activity was not restored when only Cu++ or V was used or when V was replaced by pyridoxal. Reactivated I was completely inactivated by heating at 100°. From spectral measurements the purified prepns. of I were found to contain 0.03% of Cu. Since the amount of Cu increased with increasing sp. activity, I may be considered as a Cu-containing enzyme. The spectrum of I purified 200-250 times showed absorption maximum at 410 to 412, 525, and 572 mμ. The 412 mμ maximum is slightly decreased when histamine or putrescine is added under aerobic conditions. This maximum may be predominantly due to contamination with **heme** proteins. The V in I was determined enzymically using the apoenzyme of aspartic aminotransferase of bakers' yeast. Before the assay I was treated either with cold 0.2N NaOH, or heated at pH 5.0 to 100° for 5 min. or digested with pepsin, trypsin, or pronase. After this treatment of the enzyme no V could be detected. When, however, I was first treated by a microbiol. procedure, 0.1-0.2 γ of vitamin B6/mg. of protein was found. If, therefore I contains V, it is bound firmly to the protein in a form which is not destroyed by denaturation or by proteolysis.

IT Histaminase, diamine oxidase
IT 7440-50-8, Copper
(as diamine oxidase cofactor)
IT 9001-53-0, Diamine oxidase
(substrate specificity and cofactors of)

L4 ANSWER 117 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1964:412454 CAPLUS
DN 61:12454
OREF 61:2104d-e
ED Entered STN: 22 Apr 2001
TI The isolation of homogentisic glucoside from bamboo shoot
AU Matsumura, Yuichi; Shibata, Yukio; Mimura, Tsutomu
CS Wakayama Med. Coll., Japan
SO Wakayama Igaku (1962), 13, 71-6
CODEN: WKMIAO; ISSN: 0043-0013
DT Journal
LA Unavailable
CC 56 (General Biochemistry)
AB Bamboo shoot contains homogentisic acid, which seems to be a growth-factor, and its glucoside. Homogentisic glucoside was isolated

through charcoal **chromatography** with EtOH as eluent or **ion-exchange chromatography** with Dowex-1 (200-400 mesh) X8 **borate** column after extraction with hot water and EtOH fractionation of the water extract Since this glucoside was hydrolyzed to homogentisic acid and glucose after incubation with β-glucosidase, it was recognized as a β-glucoside. Homogentisic acid was identified by paper chromatography with BuOH-AcOH-H2O (4:1:2) as developing solvent.

IT Bamboo
(homogentisic acid and its glucoside in)

IT **Glycosides** or Glucosides
(of homogentisic acid, from bamboo shoots)

IT 451-13-8, Acetic acid, (2,5-dihydroxyphenyl)- 98284-63-0, Acetic acid, [5-(glucosyloxy)-2-hydroxyphenyl]-(?) 118555-82-1, Acetic acid, [2-(glucosyloxy)-5-hydroxyphenyl]-(?)
(from bamboo shoots)

L4 ANSWER 118 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1963:60778 CAPLUS
DN 58:60778
OREF 58:10436a-g
ED Entered STN: 22 Apr 2001
TI Enzymic hydrolysis of a 4-O-methylglucuronoxylan from the wood of white birch
AU Timell, Tore E.
CS McGill Univ., Montreal, Can.
SO Svensk Papperstidning (1962), 65, 435-47
CODEN: SVPAAE; ISSN: 0283-6831
DT Journal
LA English
CC 56 (General Biochemistry)
AB This study was made to confirm the constitution of 4-O-methylglucuronoxylan (I) in Betula papyrifera (CA 55, 11317a) and to investigate the mode of action of the enzyme preparation used. A 2% I suspension from white birch wood was hydrolyzed in a 0.2% pectinase solution Hydrolysis yielded 34%, D-xylose and 40% acidic and 26% neutral oligosaccharides. The amorphous, acidic oligosaccharides were identified as aldouronic acids by methylation and periodate oxidation Methylation and hydrolysis of the total acid fraction showed that 70% of the uronic acids had a 4-O-methylglucuronic acid residue at the nonreducing xylose end group. The neutral fraction consisted of a series of β-(1 → 4)-linked xylose oligomers, ranging from xylobiose to xylohexaose. The enzyme preparation assumedly consisted of a mixture of at least 2 enzymes. A holocellulose from white birch (CA 52, 11412f; 55, 16686d), exhaustively extracted with 24% aqueous KOH gave I, and on hydrolysis gave xylose, 4-O-methylglucuronic acid, and an aldobiuronic acid, I degree of polymerization (D.P.) 120 (osmometric). The enzyme was a com. pectinase. The solvent systems used in the paper chromatography separation of the sugars were: AcOEt-pyridine-H2O (8:2:1), AcOEtAcOH-H2O (9:2:2), (3:1:3), (18:7:8), butanone-H2O-NH4OH (90:8:2), and EtOH-C6H6-H2O) (47:200:15). Paper electrophoresis was done in 0.05M **borate** buffer, spray reagent o-aminobiphenyl (CA 51, 7244e). The amts. of sugars obtained in up to 7 days by enzymic hydrolysis were (number of days, and % by weight related to original polysaccharide amount given): 1, 32; 2, 24; 3, 17; 4, 11; 5, 4; 6, 5; 7, 3. The percentage amount, D.P., % pentosan, and % uronic anhydride for original and residual xylan were determined The combined enzymic hydrolyzates were freed from Na ions by treatment with **cation-exchange resin**, and the sugar mixture was separated into a neutral and an acidic fraction by treatment with an anion-**exchange resin**. The sugars were quant. chromatographed by means of an acidic solvent system. Analysis was made of neutral and acidic sugar mixts. for weight, hypoiodite oxidation and higher acids; their Rx values were also determined The mixture of neutral sugars was resolved on a column containing a 1:1 mixture Darco G-60 charcoal and Celite, using gradient

elution (Lindberg and Wickberg, CA 49, 6131h) with aqueous EtOH after complete xylose removal with H2O. The neutral sugars were identified as D-xylose, xylobiose, xylotriose, xylotetraose, xylopentaose, and xylohexaose. Acetate derivs. were prepared by the AcCNa method (Whistler and Tu, CA 48, 609b). The fully substituted β-acetates were crystallized from aqueous EtOH or AcOEt-petr. ether (b. 30-60°) (compound, m.p., and [α]25D given): β-xylobiose hexaacetate, 155.5-56.5°, -75.1°; β-xylotriose octaacetate, m. 108-9.5°, -83.5°; β-xylotetraose decaacetate, 200-1°, -92.4°; β-xylopentaose dodecaacetate, 249-50°, -98.0°. The acidic sugars were subjected to methanolysis to give a mixture of **glycosides** which were resolved into an acid and a neutral fraction. After reduction and hydrolysis, the acid fraction yielded in all cases equimol. amts. of 3,4-di-O-methyl-D-xylose (II) and 2,3,4-tri-O-methyl-D-glucose. The neutral fraction on hydrolysis yielded 2, 3, and 4 moles of II per mole uronic acid, resp. The methylation of the total uronic acid fraction with Me2SO4 and subsequently with Ag2O-MeI eventually gave a thick sirup, its infrared spectrum (CCl4 solution) containing no HO absorption band, the mixture having [α]25D -18° (c 4.7, CHCl3). Paper electrophoresis and chromatography of the hydrolyzed neutral **glycosides** indicated the presence of 2-O- and 3-O-methylxylose (2:3). The acid fraction hydrogenated and hydrolyzed yielded a mixture of reducing sugars. Paper chromatography indicated the presence of 3-O-methylxylose in minor quantity and equimolar portions of 3,4-di-O-methylxylose and 2,3,4-tri-O-methylglucose (1:2.5:3.5). Sp. rotations were determined at 546 and 578 mμ and extrapolated to 589 mμ (Drude equation). 67 references.

IT Glucuronoxylans
(4-O-methyl derivs., enzymic hydrolysis of white birch)

IT Birch (Betula)
(4-O-methylglucuronoxylan of, papyrifera, hydrolysis by enzymes)

IT Oligosaccharides
(in 4-O-methylglucuronoxylan)

IT Xylobiose, hexaacetate, β-
Xylopentaose, dodecaacetate, β-D-
Xylotetraose, decaacetate, β-D-

IT 9032-75-1, Pectinase
(4-O-methylglucuronoxylan hydrolysis by)

IT 4060-09-7, D-Glucose, 2,3,4-tri-O-methyl-
(formation from 4-O-methylglucuronoxylan hydrolysis by enzymes)

IT 2463-49-2, Glucuronic acid, 4-O-methyl- 4060-04-2, Xylose, 2,3,4-tri-O-methyl-, D- 4153-29-1, Xylose, 2,3-di-O-methyl-, D- 6860-47-5, Xylobiose 7434-10-8, Xylose, 3,4-di-O-methyl-, D- 7434-28-8, Xylose, 2-O-methyl- 15075-11-3, Xylose, 3-O-methyl- 22416-58-6, Xylotetraose 47592-59-6, Xylotriose 49694-20-4, Xylopentaose 49694-21-5, Xylohexaose
(from 4-O-methylglucuronoxylan hydrolysis by enzymes)

IT 58-86-6, Xylose
(in 4-O-methylglucuronoxylan)

IT 9001-84-7, Phospholipase A
(lecithin hydrolysis by, positional specificity in)

IT 35395-98-3, Xylotriose, octaacetate, β-D-
(preparation of)

IT 14721-66-5, Hexadecanoic acid, 3,7,11,15-tetramethyl-
(separation from blood plasma)

L4 ANSWER 119 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1962:73690 CAPLUS
DN 56:73690
OREF 56:14382i,14383a-c
ED Entered STN: 22 Apr 2001
TI Phosphorylated sugars. I. Alkaline hydrolysis of methyl α-D-glucopyranoside 4,6-(hydrogen phosphate)

AU Szabo, Patricia; Szabo, L.
CS Centre Natl. Recherche Sci., Villejuif, Fr.
SO Journal of the Chemical Society, Abstracts (1960) 3758-62
CODEN: JCSAAZ; ISSN: 0590-9791
DT Journal
LA Unavailable
CC 37 (Carbohydrates)
AB Alkaline hydrolysis of the title compound (I) gave Me α-D-glucopyranoside 4-(di-H phosphate) (II) and the 6-(di-H phosphate) analog (III) in 4:1 ratio. No intramol. transesterification occurred, since alkaline hydrolysis of the 2,3-di-O-benzyl analog (IV) of I, followed by debenzylation gave a similar mixture of II and III. The β-D-galactose analog (V) of I also gave a similar mixture of β-D-galactose analogs of II and III.. A chromatographic method for separation of the isomeric Me α-D-glucopyranoside (VI) phosphate esters was described. A mixture containing 10 mg. each of the cyclohexylammonium salts of I and the isomeric VI monophosphates were found to be eluted by 0.062M di-κ tetraborate from a column of Dowex 1 + 2 resin (**borate** form) in the order I, III, II, VI 3-(di-H phosphate), and VI 2-(di-H phosphate). The cyclohexylammonium salt of I (1 g.) was refluxed 4 hrs. with 30 ml. saturated aqueous Ba(OH)2, freed from excess Ba+2 with **cation exchange resin**, and the mixed Ba salts of II and III precipitated with Me2CO. The ratio of II-III in the mixture was determined on the above column and a similar hydrolyzate of V was analyzed likewise, as also was a Ba(OH)2 hydrolyzate of IV after H-Pd reduction
IT Hydrolysis
(of methyl **glycoside** cyclic 4,6-phosphates)
IT Sugars
(phosphates)
IT Glucopyranoside, methyl, 2-phosphate, α-D-
Glucopyranoside, methyl, 3-phosphate, α-D-
Glucopyranoside, methyl, 4-phosphate, α-D-
Glucopyranoside, methyl, 4-phosphate, α-D-
Glucopyranoside, methyl, 6-phosphate, α-D-
Glucopyranoside, methyl, 6-phosphate, α-D-
Glucopyranoside, methyl, cyclic 4,6-phosphate, α-D-
IT Galactopyranoside, methyl, cyclic 4,6-phosphate β-D-
Glucopyranoside, methyl, cyclic 4,6-phosphate, α-D-
(hydrolysis of)
IT 255-33-4, Pyrano[3,2-d]-1,3,2-dioxaphosphorin
(sugar derivative)

L4 ANSWER 120 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1957:77974 CAPLUS
DN 51:77974
OREF 51:14088a-e
ED Entered STN: 22 Apr 2001
TI Retention of sulfur-35-labeled bovine serum **albumin** in normal and immunized rabbit liver tissue
AU Garvey, Justine S.; Campbell, Dan H.
CS California Inst. of Technol., Pasadena
SO J. Exptl. Med. (1957), 105, 361-72
DT Journal
LA Unavailable
CC 11G (Biological Chemistry: Pathology)
AB cf. C.A. 48, 4678b; J. Immunol. 76, 36(1956). Rabbits were given either a single injection by vein of 50 mg. of S35-labeled bovine serum **albumin** (I) or S35-hemocyanin (II) or 9 injections of S35-I, 10 mg. each on alternate days. The circulating antibody was determined by adding a constant amount of serum to varying amts. of non-radioactive I; the ppts. were washed after standing 48 hours at 4°, and the N determined The anti-genicity of retained or excreted antigen was determined by the

Schultz-Dale reaction. The S35-I antigen material was isolated from the livers by freezing, crushing, mixing with 0.25 M sucrose, and fractionating in a centrifuge. The supernatant, containing 80-90% of the total radioactivity of the liver, was dialyzed against 0.0015 μ **borate** buffer until free of sucrose, and lyophilized and stored at 4°. It was then purified further by centrifuging, filtering, and passing the cleared solution through an **ion-exchange** column of the chloride form of Dowex 2 **resin**, washing the radioactivity-containing **resin**, eluting with Na salicylate, and dialyzing against **borate**. The amount of S35-retained in liver tissue after a single injection of S35-I was about 7% of the total amount injected. The amount retained then slowly decreased and 140 days later was about 0.023% of that injected. The amount of S35 which was retained after a series of injections was less in terms of percent and of absolute amount Of the

90 mg. injected, about 0.01% was retained at 130 days. The retention of S35-II was somewhat higher than for S35-I, but there was a similar difference between single and multiple injections. Amts. of the order of 0.05% (25 γ) of antigen material persisted after 330 days. All of the radioactivity of material retained in the liver 6 weeks after injection was immunologically related to the original S35-I antigen. The retained antigen appeared to be ribonucleic acid.

IT Immunization
(**albumin** or hemocyanin life span after)

IT Liver
(**albumin** or hemocyanin life span in, after administration to immunized rabbit)

IT Polysaccharides
(antigenic)

IT Albumins
(in immunized liver, life span of)

IT Hemocyanins
(life span of, in immunized liver)

L4 ANSWER 121 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1956:44554 CAPLUS
DN 50:44554
OREF 50:8617d-i,8618a-c
ED Entered STN: 22 Apr 2001
TI The chemistry of flower pigmentation in Antirrhinium majus. V. Pigments of yellow Antirrhinium majus, genotype ppmmyy
AU Seikel, Margaret K.
CS Wellesley Coll., Los Angeles, CA
SO Journal of the American Chemical Society (1955), 77, 5685-8
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA Unavailable
CC 10 (Organic Chemistry)
AB cf. C.A. 49, 10452i. From the pure genotype ppmmyy of Antirrhinium majus the single flavone pigment apigenin 7-glucuronide (I) has been isolated as its acetate. The **glycosidic** naringenin pigment in this species has been shown to be a 7-glucoside. The yellow blossoms of A. majus were extracted by the method described previously (C.A. 45, 5686a). The aureusin isolated and acetylated as before (loc. cit.), and the acetylated product extracted in the usual manner and recrystd. twice from EtOAc gave 0.080 g. aureusin heptaacetate (II), m. 264.5-66° (from 75 g. petals); it gave a rose-red color with 10% aqueous NaOH and a vivid orange-red color with concentrated H_2SO_4. Dry petals (1 lb.) was worked up in the usual manner and a small amount of crude product, naringenin 7-glucoside hexaacetate, white crystals, m. 186.5-8.5°, isolated; it gave a yellow precipitate with basic Pb acetate, a deep bluish pink color with EtOH-Mg-HCl, and a yellow color with base and concentrated H_2SO_4. The MeOH solns. from the crude II evaporated, the

solns. redild. and allowed to stand, and the crystalline deposit extracted with hot MeOH, and the residue recrystd. from Me2CO gave 0.4-0.5 g. pentaacetate (III) of I (from 50-75 g. petals); it gave a lemon-yellow color with base and acid and melted in the region 220-30°. III recrystd. from large vols. EtOH (0.1 g./about 150 cc.) gave purified III, long silky, colorless hairs, m. 224-4.5°; it gave a pink-orange color with EtOH-Mg-HCl after preliminary heating. III (0.1 g.) hydrolyzed with 0.6N HCl gave the crude, mustard-tan apigenin, m. 348-50°, which acetylated in the usual manner and recrystd. 3 times from MeOH gave the triacetate, m. 181-2°; it gave with 10% aqueous NaOH a slowly appearing lemon-yellow color, with concentrated H2SO4 a vivid green-yellow color, and with EtOH-Mg-HCl after preliminary hydrolysis with concentrated acid flesh tones becoming yellow with excess acid. The solns. of the sugars from the acidic hydrolysis of the crystalline acetates of the pigments free from hydrogen and chloride **ion** in the usual manner (loc. cit.), the filtrates concentrated in vacuo, concentrated to a volume calculated to contain 1% hexose, and filtered, and the filtrates and authentic solns. of various sugars **chromatographed** on paper demonstrated the presence of glucose from aureusin and naringenin **glycoside**, and of glucuronic acid from apigenin. III (2 mg.) in 3 cc. warm MeOH treated alternately with stirring with micro drops of 50% KOH (0.75 cc.) and 0.4 cc. Me2SO4, the cooled basic solution diluted with H2O to 5 cc., extracted with Et2O to remove an impurity, adjusted to pH 2 with HCl, saturated with NaCl, and extracted with Et2O and CHCl3, the combined exts. evaporated, and the residue hydrolyzed gave a trace of apigenin 4',5-di-Me ether, which gave on paper under ultraviolet irradiation a light blue color and under the same conditions but in the presence of NH3 a light yellow color; it showed the following Rf values (developer given in parentheses): 0.91 (BuOH-AcOH-H2O), 0.41 (30% AcOH), 0.82 (aqueous BuOH), 0.77 (BuOH-H2O on **borate** paper at pH 8.7), 0.30 (BuOH-H2O on **borate** paper, 0.1M NaBO2, pH 10.0). Naringenin glucoside hexaacetate (2 mg.), m. 195.5-97°, treated with 0.7 cc. saturated aqueous Ba(OH)2 40 hrs. with occasional shaking, the yellow solution acidified to pH 3, the acidic solution warmed 15 min. on a steam bath, cooled, washed with Et2O, saturated with NaCl, and extracted with Et2O, and the extract evaporated gave a trace of naringenin 7-glucoside (IV), which showed the following Rf values (developer given in parentheses): 0.56 (5% AcOH), 0.38 (3% NaCl), 0.78 (BuOH-AcOH-H2O), 0.79 (30% AcOH), 0.76 (60% AcOH); it gave a hexaacetate, m. 192.5-94°. Naringin (0.5 g.) refluxed 1.5-2 hrs. with 50 cc. MeOH and 50 cc. 2N HCl, the MeOH evaporated in vacuo, the residual aqueous solution extracted with small vols. Et2O, the extract washed with H2O, the aqueous layer and washings extracted with PrOH, the PrOH evaporated, and the residue recrystd. over 2 weeks from MeOH or absolute EtOH gave 0.121 g. IV, m. 221-3°; it gave bright yellow colors with base and strong acid, a purplish brown color with FeCl3, and a red-purple color with EtOH-Mg-HCl. IV (29 mg.) boiled with excess Ac2O and NaOAc, and the product recrystd. from MeOH gave hexaacetate of IV.

IT Glucuronide
(apigenin-7)

IT Glucuronide
(apigenin-7, pentaacetate)

IT Chromatography and Adsorption analysis
(of apigenin and narigenin derivs.)

IT Spectra
(of apigenin derivs. and of luteolin tetraacetate)

IT Pigments, plant
(of snapdragons)

IT Snapdragon and(or) Antirrhinum
(pigmentation of)
IT Aureusin, heptaacetate
Glucoside, 5-hydroxy-2-(p-hydroxyphenyl)-4-oxo-7-chromanyl
Glucoside, 5-hydroxy-2-(p-hydroxyphenyl)-4-oxo-7-chromanyl, hexaacetate
Prunin, hexaacetate
IT 520-36-5, Apigenin
(and 7-glucuronide and other derivs.)
IT 529-55-5, Prunin 633-15-8, Aureusin 13698-23-2, Flavone, 7-hydroxy-4',5-dimethoxy-
(preparation of)
IT 1061-93-4, Luteolin, tetraacetate
(spectrum of)

L4 ANSWER 122 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1956:17871 CAPLUS
DN 50:17871
OREF 50:3713b-d
ED Entered STN: 22 Apr 2001
TI Glucosides and isopropylidene derivatives. Synthesis by cation-exchanger catalysis
AU Erne, Kurt
CS State Vet. Med. Inst., Stockholm
SO Acta Chemica Scandinavica (1955), 9, 893-901
CODEN: ACHSE7; ISSN: 0904-213X
DT Journal
LA Unavailable
CC 17 (Pharmaceuticals, Cosmetics, and Perfumes)
AB Methyl glucoside formation catalyzed by acid-regenerated **cation-exchange** resins (I) was studied. Reducing power and optical rotation curves for reaction between glucose and MeOH are similar to those obtained on mineral-acid catalysis, but the mineral-acid-catalyzed reaction is 10 times faster. The order of appearance of reaction products was studied by paper chromatography. The total yield of α-methyl-D-glucopyranoside was 80%. MeOH, maltose or lactose, and I only gave traces of disaccharide glucosides; the main products were component-monosaccharide methyl glucosides. Fructose in MeOH was rapidly degraded by I and no crystalline fructoside could be isolated. I catalyzed the reaction between fructose and acetone to give 1,2,4,5-diisopropylidene-D-fructopyranose at 20°. The analogous but less rapid reaction between glucose and acetone gives a mixture of 1,2-isopropylideneglucose and 1,2,5,6-diisopropylideneglucose. **Borate** hindered the acetonylation.
IT Base-exchanging compounds or Cation-exchanging compounds
(as catalysts, in carbohydrate-derivative synthesis)
IT Resinous products
(base- or cation-exchanging, catalysis of carbohydrate derivative synthesis by)
IT Borates
(effect on acetonylation of sugars)
IT Saccharides
(isopropylidene derivs., cation-exchanger catalysis of synthesis of)
IT Catalysis
(of carbohydrate derivative, synthesis by cation-exchanging resins)
IT **Glycosides** or Glucosides
(preparation of, cation-exchanger catalysis of)
IT D-Glucose, 1,2:5,6-di-O-isopropylidene-
(synthesis of, cation-exchanger catalysis of)
IT 97-30-3, Glucopyranoside, methyl, α-D- 15080-25-8, Fructopyranose, 1,2:4,5-di-O-isopropylidene-, D-
(cation-exchanger catalysis of synthesis of)
IT 57-48-7, Fructose
(derivs., cation-exchanger catalysis in preparation of)

IT 50-99-7, D-Glucose
(derivs., cation-exchanger catalysis of synthesis of)
IT 63-42-3, Lactose
(reaction with MeOH, cation-exchanger catalysis of)
IT 69-79-4, Maltose
(reactions of, with MeOH, cation-exchanger catalysis of)
IT 67-64-1, Acetone
(reactions of, with fructose and glucose, cation-exchanger catalysis of)
IT 67-56-1, Methanol
(reactions with sugars, cation-exchanger catalysis of)
IT 179-64-6, Spiro[1,3-dioxolane-4,6'-[6H-1,3]-dioxolo[4,5-c]pyran]
251-34-3, Furo[3,4-d]-1,3-dioxole
(sugar derivs.)
IT 97-30-3, Glucoside, α-methyl- 81432-20-4, D-Glucose, 1,2-O-isopropylidene-
(synthesis of, cation-exchanger catalysis of)

L4 ANSWER 123 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1954:42643 CAPLUS
DN 48:42643
OREF 48:7664e-h
ED Entered STN: 22 Apr 2001
TI Identification of the purine nucleotides a and b as the 2'- and 3'-phosphoribosides, respectively
AU Khym, Joseph X.; Cohn, Waldo E.
CS Oak Ridge Natl. Lab., Oak Ridge, TN
SO Journal of the American Chemical Society (1954), 76, 1818-23
CODEN: JACSAT; ISSN: 0002-7863
DT Journal
LA Unavailable
CC 11A (Biological Chemistry: General)
AB cf. C.A. 47, 12132b. The isomeric adenylic acids derived from the alkaline hydrolysis of ribonucleic acids and known as a and b were identified as adenine-2'- and -3'-phosphates, resp., by determining the amts. of each of the ribosephosphates produced from either nucleotide upon cleavage of the N-**glycoside** linkage. Hydrolysis to adenine and ribose phosphate was effected by a polystyrene-sulfonic acid **ion-exchange resin** which absorbed the nucleotides but not the produced ribose phosphates. Posthydrolytic isomerization of the ribose phosphates was thus reduced to insignificance during the remainder of the hydrolysis period. Assay of the ribose phosphates produced was achieved by **ion-exchange chromatography** in the presence of **borate ion,** which differentially complexes all 5 of the ribose phosphates and permits the separation and assay of each. Periods of hydrolysis were short and were comparable with the time required for the starting nucleotide to produce the equilibrium amount of its isomeric form; thus the ribose phosphate derived from the former was allowed to predominate. In this manner each ribose phosphate was shown to be the daughter of 1 adenylic acid. Similar results were attained with the guanylic acids. Evidence is presented to indicate that the discrepancies in the earlier attempts to determine the structure of these nucleotides by similar degradative procedures arose from acid-catalyzed phosphomigration during the procedures.
IT Nucleotides
(identification of purine a and b)
IT Guanylic acid
(in purine nucleotide a and b identification)
IT Phosphoribosides
(purine nucleotides a and b as 2'- and 3'-)
IT Protogen
(separation of)

IT 4300-28-1, Ribose phosphate
(from purine nucleotides a and b by cleavage of N-**glycoside** linkage)
IT 61-19-8, Adenylic acid
(structure of a and b)

L4 ANSWER 124 OF 124 CAPLUS COPYRIGHT 2004 ACS on STN
AN 1952:69446 CAPLUS
DN 46:69446
OREF 46:11588f-g
ED Entered STN: 22 Apr 2001
TI The use of ion-exchange resins with **glycosides**
AU Chambers, M. A.; Zill, L. P.; Noggle, G. R.
CS Oak Ridge Natl. Lab., Oak Ridge, TN
SO Journal of the American Pharmaceutical Association (1912-1977) (1952), 41, 461-4
CODEN: JPHAA3; ISSN: 0003-0465
DT Journal
LA Unavailable
CC 17 (Pharmaceuticals, Cosmetics, and Perfumes)
AB The separation of **glycosides** by the method of Khym and Zill (J. Am. Chemical Society 74, 2090(1952)) is due to the adsorption of the aglycon moiety rather than **ion-exchange** adsorption of the **borate** complexes.
IT **Glycosides** or Glucosides
(absorption of, by ion-exchange resins)
IT Ions
(electrolytic, -exchanging substances, use with **glycosides**)
IT Resinous products
(ion-exchanging, in **glycoside** separation)

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